

PEARSALL, SARAH J., Ph.D. *Getting in the Zone: Flow Experiences of High School Students in Language Arts.* (2018)
Directed by Dr. Pamela Williamson. 189 pp.

There are severe gaps in reading achievement among students based on ability, race, and income levels. As a result, many high school students with reading difficulties, particularly those who are minorities and living in poverty, are not able to read with the same level of skill as their peers, which can affect their chances of success later in life. Flow theory may offer guidance regarding how to engage and motivate these students in school, particularly when it comes to reading. When individuals have a flow experience, Csikszentmihalyi suggests that intrinsic motivation to participate in that activity will increase and more participation may translate to improved performance. In this mixed methods case study, participants included a language arts teacher and 22 10th-grade students attending language arts classes at a Title I public charter school. A reading assessment was administered along with surveys measuring self-efficacy, motivation, and flow. On three occasions, students' flow scores were evaluated and compared. Data were analyzed using descriptive and inferential statistics, including hierarchical linear modeling and mediation analysis. Follow-up interviews were conducted with 13 participants to better understand their flow experiences including what motivates and engages them across contexts. These data were analyzed via domain analysis. Results indicated that although there were no differences in flow across activities, there were differences based on individual characteristics, including intrinsic motivation to read and perceptions of skill/challenge balance. In addition, reading ability and flow together explained a substantial portion of variability in reading motivation overall. Interview data

centered on students being driven to succeed. Other themes identified related to teacher attributes, motivation, engagement, reading, and flow. Implications and suggestions for practice are also discussed.

GETTING IN THE ZONE: FLOW EXPERIENCES OF HIGH SCHOOL
STUDENTS IN LANGUAGE ARTS

by

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A Dissertation Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
2018

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CHAPTER I

INTRODUCTION

The severe achievement gaps in reading between individuals based on race, socioeconomic status, and ability have persisted for decades (National Assessment of Educational Progress; NAEP, 2018). Difficulties with reading, particularly reading comprehension, often continue throughout the academic careers of students and influence all aspects of their education including motivation, engagement, and achievement. As a result, a substantial portion of students who struggle with reading does not finish high school, which has direct consequences on important life outcomes (Hernandez, 2012). In this study, I considered the application of flow theory during language arts instruction to potentially alter students' beliefs about and feelings toward reading. Through this research, I aimed to identify classroom-reading activities as they are typically taught to high school students in Title I schools that may increase the likelihood of students entering a flow state.

Csikszentmihalyi (1990) describes flow as a state in which individuals are so intensely focused that they no longer attend to outside distractions such as self-consciousness and the passage of time. An essential precondition of entering a flow state is the perceived balance between one's skills and task difficulty, which may be a reflection of students' self-efficacy beliefs. Along with the other preconditions of clear goals and immediate feedback, flow experiences have been repeatedly shown to improve

achievement and performance across numerous types of activities including music, math, video games, and sports (e.g., Engeser & Rheinberg, 2008; Fullagar, Knight, & Sovern, 2013; Jackson & Marsh, 1996). Researchers also assert that flow leads to positive affect and therefore directly influences an individual's intrinsic motivation to pursue an activity (Csikszentmihalyi, 1997; Nakamura & Csikszentmihalyi, 2005).

Although the general consensus is that academic achievement is important, others believe motivating students to learn is an even more critical goal of education (Csikszentmihalyi, 1997; Guthrie, Coddington, & Wigfield, 2009; Ladson-Billings, 1995) and flow is the avenue by which this can be achieved. As such, it is possible that understanding opportunities for flow during typical instruction could alter the trajectory of low motivation and poor performance on reading tasks characteristic of individuals with reading difficulties (RD; Gibbs & Elliott, 2015). This study seeks to add to the existing research by examining characteristics of flow experiences of high school students with and without disabilities in Title I schools—populations missing from this body of work—during natural reading activities in their language arts classrooms.

Research Questions

This study aims to address to the following questions:

1. How do students perceive the skill/challenge balance during classroom activities involving reading? Does greater balance predict entering a flow state in this sample?

- 1a. Are students' perceptions of their reading abilities (i.e., self-efficacy beliefs) accurate when compared to their performance? What effect does disability category or gender have on this alignment?
2. Does the type of classroom reading activity predict a student's ability to experience flow? Which activities are more conducive to students entering a flow state?
3. Does disability classification (i.e., having reading difficulties or not) predict a student's reading motivation profile? Is this relationship mediated by flow experiences during reading activities?
4. How do students with and without reading difficulties describe their flow experiences during leisure and school activities, particularly reading?

The following hypotheses were tested. For the first question, it was anticipated that students would experience greater balance between perceived skill and task difficulty if their self-efficacy was more closely aligned with their actual abilities on a standardized reading assessment and greater balance would predict flow. Students with RD were expected to show greater deviations in alignment. For the second question, activities in which students were offered choice and those in which students could interact with one another were expected to predict flow more so than when the activities were independent and imposed on students. For the third question, students with reading difficulties were expected to be higher on the avoidance subscale of reading motivation and therefore be ambivalent or averse in their motivation profiles. If these students experience flow more often during reading, however, it was anticipated that they may demonstrate lower

avoidance motivation and greater intrinsic motivation. The final question was qualitative in nature and was intended to provide insight into the findings from the other questions. Therefore, this portion was exploratory and no hypotheses were established.

Trends in Reading Achievement

The ability to read provides individuals with a multitude of advantages both in school and in the real world. Individuals who are literate are more likely to be successful in school and career settings, participate in elections, and understand text required to get by on a day-to-day basis (Reardon, Valentino, & Shores, 2012; Vaughn et al., 2015). For children, the pressures to learn to read and read well have increased immensely with mandatory testing required under federal law (Jennings, Caldwell, & Lerner, 2014b) and demands placed upon them as outlined in the Common Core State Standards (CCSS; Vaughn et al., 2015). These mandates also add pressure to teachers to ensure their students are performing at the appropriate level. Unfortunately, students continue to fail to meet basic reading proficiency levels for their age group.

According to the most recent results of the NAEP, which were published in 2015 for 12th graders and 2018 for fourth and eighth graders, the majority of students in the United States are reading below the threshold to be considered proficient readers. On this assessment, a proficient reader in the 12th grade can achieve the tasks at the below basic (i.e., recognize the main purpose and supporting ideas in expository texts, interpret stories and character actions) and basic levels (i.e., make inferences, understand and explain characters' feelings), as well as explain article details and understand the purpose of a document. Of all 12th-grade students tested, only 37% were at or above a proficient

reading level. Even more concerning are the vast differences in achievement across races and abilities. It should be noted that for the purposes of this study, students' identities are discussed in terms of race (e.g., Black, White) rather than ethnicity (e.g., African American, Caucasian) because race can encompass individuals from multiple ethnicities within one group. Twelfth grade students who are Black grossly underperformed with only 17% at or above proficient compared to 46% of White students, and only 12% of those tested with disabilities achieved this level. Moreover, 63% of students tested with disabilities performed at the below basic level. Examination of racial and ability differences across grade levels tested (i.e., fourth, eighth, and 12th) revealed that these rates remain stable across time, within and between individuals (NAEP, 2012, 2015, 2018). This coincides with evidence from research that improving reading ability beyond the third grade poses a significant challenge (Vaughn et al., 2015).

These trends have also been found through research in education. In a study of fifth graders, it was already apparent that students who were White scored significantly better on standardized measures of reading comprehension, oral reading fluency, and word recognition than their non-White peers (Guthrie et al., 2009). Inspection of ACT (2012) performance data suggests that Black and Hispanic high school graduates were not meeting the standards for college readiness when compared to their White and Asian peers. According to these researchers, however, the achievement gap between ethnicities is present by the end of middle school and not only persists through high school, but actually gets larger, particularly for Black students (ACT, 2012). More specifically, a review of the literature revealed the racial disparities in reading achievement for early

high school students to be a difference of 3 years, whereby Black and Hispanic students are behind their White and Asian peers (Reardon et al., 2012). Upon examination of longitudinal data, these authors reported the gap between racial groups has narrowed over the past four decades, though the majority of this occurred during the 1970s and 1980s (Reardon et al., 2012). As one author notes, however, the likelihood of living in poverty and attending low-performing schools is greater for children who are Black or Hispanic in the United States (Hernandez, 2012). Thus, it is probable that the influence of income supersedes the impact of race or ethnicity alone when it comes to reading achievement (ACT, 2012).

Numerous authors have stressed the negative impact that living in poverty can have on students' academic achievement, including the increased likelihood of school failure and dropout (Hernandez, 2012; Jennings, Caldwell, & Lerner, 2014a; Lesaux, 2012; Reardon et al., 2012; Sorhagen, 2013). Although data from the NAEP (2018) regarding performance of students of low SES is only provided for those in the fourth and eighth grades, the rates of proficiency are nearly identical at 22% and 21%, respectively. Given the stability of the previous rates discussed, it is likely that these rates would be similar for 12th-grade students as well. In addition, the achievement gap in reading between students of low SES backgrounds and students not in poverty is greater than those between any racial or ethnic groups (Hernandez, 2012; Reardon et al., 2012); this has been a pervasive problem in the United States for decades that seems to be getting worse (Reardon et al., 2012; Sorhagen, 2013). Whereas the gap previously discussed between Black and White students was that of 3 years, the gap between students in

poverty and those not in poverty is 5 years such that eighth-grade low income students are reading at the same level as third-grade students from high SES backgrounds (Hernandez, 2012; Reardon et al., 2012).

Given the lack of resources available to disadvantaged students from their families and schools, coupled with these students' limited vocabularies in early grades as a result of reduced exposure in their communities (Lesaux, 2012), it is likely that these students will demonstrate difficulty reading (Hernandez, 2012). The combination of poor academic skills and living in poverty is detrimental for these children, placing them in what Hernandez (2012) calls "double jeopardy" (p. 3). Even without the influence of socioeconomic status, individuals who have reading problems drop out of high school at a much higher rate than those who do not (Hernandez, 2012; Vaughn et al., 2015). Roughly 16% of students who read below proficiency by the third grade will drop out of school compared to 4% who reach this threshold (Hernandez, 2012). The influence of poverty, however, is severe.

Considered alone, 22% of students who have lived in poverty for at least a year and 32% of those in poverty more than half of their childhood do not graduate high school versus 6% who have never lived in poverty. Of the students who can read proficiently in the third grade, 11% do not finish school if they come from low-income families. When considering reading and poverty together, 26% of students who are reading below proficiency in third grade and have lived in poverty for at least one year will not obtain their diploma and the dropout rates are highest for low-income minorities (31% for Black students and 33% for Hispanic students). Ultimately, over two-thirds of

the students who do not finish high school have lived in poverty for at least one year despite only comprising 38% of the total student population. Thus, “poverty matters” (Hernandez, 2012, p. 8).

The number of students in school from low income families has increased in recent years (Darling-Hammond, 2014; Lesaux, 2012), as has the percentage of students with learning disabilities served in general education (GE) classrooms (U.S. Department of Education, 2015-2016; McLeskey, Landers, Hoppey, & Williamson, 2011). As of 2016, 70% of students aged 6-21 diagnosed with a specific learning disability (SLD) spent more than 80% of their day learning in GE classrooms, up from 62% five years ago. This number increases to 94% when including those students in GE classes 40-79% of their day. As a result, teachers must adapt to address these students’ different yet significant delays in reading achievement. Teachers must also take the time to understand the nature of these deficits in relation to low SES (Jennings et al., 2014a), particularly those teaching in Title I schools. This is a challenge when the vast majority of educational research continues to neglect these racial and economic groups most in need of help (Burriss & Brown, 2014).

Of concern is the fact that current efforts to universally improve reading achievement have failed (Gross, Booker, & Goldhaber, 2009; Shippen, Houchins, Calhoun, Furlow, & Sartor, 2006). Long-term implementation of comprehensive school reform has not produced the anticipated improvement in reading scores for any students, regardless of background. When these efforts are effective (i.e., in math), only students who are White and middle class demonstrate improvement and growth is minimal (Gross

et al., 2009). Black and Hispanic students actually show a decrease in achievement over time. These findings suggest that not only is comprehensive school reform lacking overall, but the programs used are likely insensitive to cultural differences that inherently impact student learning (e.g., race, SES). As such, teachers should consider ways in which to incorporate diversity into their instruction. One way to address diverse learning needs is by way of culturally relevant pedagogy (Ladson-Billings, 1995), a framework that outlines suggestions for instruction that have been shown to promote motivation and engagement in minority students from low income families. Although culturally relevant pedagogy will not be explicitly examined in the present study, it does serve as the conceptual framework guiding this inquiry.

In the present study, limitations of the extant research are addressed by including students from a Title I high school. Furthermore, the population of interest consists of these students who also underperform in reading. Considering the sample in this study will consist of older adolescents, a group in which reading ability is difficult to improve, I am focused more on the motivational outcome of flow, which has been shown to predict reading achievement in other studies across student populations (e.g., Ho & Guthrie, 2013). If there are ways to bolster these students' intrinsic motivation to read, it is natural that improvements in reading ability will follow as they pursue reading activities more frequently and with greater engagement. More importantly, if these methods to improve motivation can be easily incorporated into typical classroom instruction, it may be more likely that teachers will implement them in their classes and subsequently improve student outcomes. Thus, there is direct applicability of the findings from the current

research to teacher practice within the context of regular instruction insofar as providing students with opportunities to deeply engage with classroom materials.

Motivation and Flow

Motivation to Read

Motivation plays a critical role in education. Students who are intrinsically motivated to read (i.e., read for the sake of reading) demonstrate greater levels of engagement during schoolwork and reading (Klauda & Guthrie, 2015; Wigfield & Guthrie, 1997) as well as higher levels of reading achievement (Guthrie et al., 2009; Ho & Guthrie, 2013). This may be related to motivated students' higher self-efficacy beliefs toward learning and clearly established achievement goals (Guthrie et al., 2009). In students with reading disabilities and from low-income families, however, this motivation may be lacking (Ho & Guthrie, 2013; Klauda & Guthrie, 2015; Lee & Zentall, 2012; Melekoglu & Wilkerson, 2013). When motivation is lacking, students tend to avoid reading in school as well as in their leisure time (Ho & Guthrie, 2013; Jennings et al., 2014a; Wigfield & Guthrie, 1997). Considering that the more one engages in a behavior the better one performs, it is essential that teachers increase students' motivation to read.

Researchers in education offer various ways teachers can attempt to improve students' motivation to read. Most commonly, they suggest selecting reading materials that are of interest to the student and relevant to the student's life (Cantrell et al., 2017; Denton et al., 2015; Jennings et al., 2014b), which are viable recommendations. Another recommendation is providing students with greater control over their learning experiences (Hofferber, Basten, Grobmann, & Wilde, 2016; Mackenzie, Son, &

Hollenhorst, 2014). This autonomy can not only increase students' interest in an activity, but it can also better fit their needs. For instance, self-efficacy and perceived difficulty of a task, conceptualized as components of motivation, have been shown to impact student achievement. Researchers in one study found that self-efficacy and perceived difficulty were not only highly correlated within students, but also individually correlated with comprehension scores (Ho & Guthrie, 2013). In another study, motivation was shown to mediate the effect of self-efficacy on students' reading achievement (Lee & Jonson-Reid, 2016). Interestingly, these contributing factors are accounted for within flow theory, though much, if not all, of the research in motivation and reading fails to acknowledge the role flow experiences can play in improving motivation.

These elements directly correspond to the balance hypothesis in flow theory whereby it is the alignment of a student's perceived skill level and perceived task difficulty that are critical for entering a flow state (Csikszentmihalyi, 1990; Nakamura & Csikszentmihalyi, 2005). Nakamura and Csikszentmihalyi (2005) assert that not only can anyone experience flow, but anyone can also become intrinsically motivated toward any activity once he or she experiences flow in that activity. The ability to experience flow is independent of socioeconomic status (Schmidt, Shernoff, & Csikszentmihalyi, 2007) and intelligence (Dietrich, 2004). As such, it is reasonable to assume that flow experiences can increase motivation if students perceive the task in line with their skills. This relationship could in turn lead to improved reading achievement based on higher engagement with text and greater time spent reading.

Self-efficacy. When Csikszentmihalyi (1990) refers to perceived skills, one way to interpret this is as an individual's self-efficacy in a particular domain. The term self-efficacy was first used by Bandura (1977) and refers to a people's beliefs about their abilities to succeed at a particular activity. Self-efficacy is therefore domain-specific (Pajares, 1996), such as self-efficacy for reading (Bandura, 2006; Shell, Murphy, & Bruning, 1989). Self-efficacy has been shown to be a strong predictor of reading achievement (Proctor, Daley, Louick, Leider, & Gardner, 2014; Wigfield & Guthrie, 1997) and directly influence students' reading motivation (Guthrie et al., 2009). When students have higher self-efficacy beliefs, they are more likely to pursue difficult tasks and persist when faced with challenges (Bandura, 1997; Cantrell et al., 2017; Linnenbrink & Pintrich, 2003). They are also more likely to be interested in that activity (Bandura, 1997), which could lead them to engage in it more often. In contrast, students with low self-efficacy beliefs will likely avoid challenges altogether or quit as soon as they perceive a task as difficult (Linnenbrink & Pintrich, 2003).

For students who have reading difficulties, their lowered self-efficacy beliefs have been discovered as early as second grade (Lee & Zentall, 2012). This would indicate that these individuals may begin avoiding reading tasks by the third grade, significantly inhibiting their growth in reading ability. Moreover, Bandura (1993) found that students with low self-efficacy in academic domains are highly likely to experience anxiety when it comes to achievement-related tasks, which leads to poorer achievement (Linnenbrink & Pintrich, 2003) and a reduced ability to concentrate (Jennings et al., 2014a).

According to flow theory (Csikszentmihalyi, 1975), this should be expected. Based on the current model of flow, there are eight combinations of skill and challenge that can occur (Csikszentmihalyi, 1997). Generally, four of these are of particular interest to researchers: anxiety, relaxation, apathy, and flow. If students face challenges that exceed their perceived abilities, they will experience anxiety. If their skills far outweigh the challenges, they will experience relaxation. If both skills and challenge are low, students will experience apathy. Finally, if both skills and challenge are high, students will experience flow. This is not to say, however, that students who struggle with reading can never enter flow if they have low self-efficacy beliefs toward reading. Instead, this suggests that the texts should match their perceived skill level and increasingly get more challenging as their abilities improve. A way to scaffold this instruction was introduced in the Growth Model Improved by Flow (GMIF) theory in which the authors outlined how to maintain learners' flow as they learn new things (Challco, Andrade, Borges, Bittencourt, & Isotani, 2016).

Given that balance leading to flow experiences is based on perceived ability, a question that remains is whether or not students' self-efficacy beliefs are accurate (Linnenbrink & Pintrich, 2003). To date, this relationship between reading self-efficacy and reading ability has not been widely explored, particularly among students with disabilities and those in Title I schools. There is evidence in other domains, though, to suggest that self-efficacy beliefs and abilities often do not align (Corkett, Hatt, & Benevides, 2011) and many individuals have inflated self-efficacy beliefs until they are faced with a situation that indicates otherwise (e.g., Tschannen-Moran & Johnson, 2011;

Whitehurst, Williamson, Letson, & Williams, in preparation). Therefore, one of the main findings to come out of the present study will be how these beliefs align with actual reading ability for the students in our sample and whether this alignment differs between demographic groups (e.g., disability). Subsequently, whether this alignment has a direct influence on the relationship between skill/challenge balance and flow experiences will be examined. If it is the case that students have an inflated sense of self-efficacy, flow researchers would suggest that is ideal (Jackson, Kimiecik, Ford, & Marsh, 1998). If students perceive their skills to be higher, they would therefore be less likely to perceive a task as exceedingly difficult, thus being more inclined to tackle the task in the first place and see it through to completion (Jackson et al., 1998; Wigfield & Guthrie, 1997).

Additionally, understanding this alignment is critical for teachers to be able provide appropriate instruction based on their students' needs. If teachers base their decisions on students' actual abilities without taking into account their perceived abilities, it is possible they would opt for texts above or below the ideal level for the student, leading them to experience anxiety, relaxation, or boredom (Nakamura & Csikszentmihalyi, 2005). In one study, teachers consistently incorrectly estimated their students' self-efficacy beliefs of reading and writing (Corkett et al., 2011). These teachers appeared to be influenced by their own self-efficacy for teaching beliefs, assuming students had higher self-efficacy beliefs if the teachers' self-efficacy beliefs were high (Corkett et al., 2011). This suggests that an imbalance of skills and challenge would be likely to occur in these classrooms, preventing students from experiencing flow and resultant increases in motivation and achievement.

In the following chapter, these concepts will be explored in greater detail. Research on each of these constructs and relationships will be discussed including how the present study expands upon those findings. Next, in Chapter III, the methodology of this study will be thoroughly described including the participants, study design, procedures, measures, and analysis techniques. Chapter IV will consist of the findings from this study, including descriptive and inferential statistics as well as themes identified in the qualitative data. Finally, in Chapter V, the findings will be discussed more broadly in terms of the implications of the findings, limitations of the study, and recommendations for future research.

CHAPTER II

LITERATURE REVIEW

The severe achievement gaps in reading between individuals based on race, socioeconomic status, and ability have persisted for decades (NAEP, 2018). Despite legislative efforts encouraging improvement for all students, progress has been dismal. Although living in poverty has been shown to have negative effects on academic achievement (e.g., Hernandez, 2012; NAEP, 2018), this gap speaks to the larger issue of ineffective instructional practices based on the needs of these underrepresented groups. With the majority of teachers being White middle class women, there may be a disconnect in fully understanding students' backgrounds and cultural influences on their knowledge and behavior, particularly for students who are underprivileged (Howard & Rodriguez-Minkoff, 2017). To address this concern, Ladson-Billings (1995) introduced culturally relevant pedagogy (CRP) as a theoretical framework from which teachers could motivate these youth to rely upon their different backgrounds to improve achievement, become culturally competent, and actively critique issues of social justice. Through this lens, the present study will examine activities in Title I high school language arts classes and opportunities for students to have optimal experiences that can promote motivation and learning.

Culturally Relevant Pedagogy

Culturally relevant pedagogy was developed in response to the poor performance of young Black children in educational settings originally structured around White middle class students (Ladson-Billings, 1995). It expands upon cultural responsiveness, which relates more to merging students' home experiences with those in the classroom. Much of the research on instruction of minority children, however, fails to make this distinction (Milner, 2017). At the core of CRP is the idea that students should be encouraged to be themselves and view their differences as an advantage rather than a hindrance when it comes to their education. In doing so, they can accomplish the three goals of CRP: improved academic achievement, cultural competency, and engagement with social justice issues.

In Ladson-Billings's (1992) case study research of effective teachers of Black students, she identified a series of commonalities among the differences in instructional techniques. From these themes, she proposed the theory of CRP as a "continuum of teaching behaviors" from which teachers could learn to adapt their instruction to meet the needs of their minority student population (p. 478). The continuum consists of three overarching propositions (i.e., understanding of self and others, how social relations are developed, and understanding of knowledge), each accompanied by specific examples of beliefs held by culturally relevant teachers (see Table 1). Notably, the successful teachers in her study strongly identified with their students' communities and demanded success from students. They also established educational environments fostering collaboration in which students not only viewed success as an individual endeavor, but something to be

achieved by everyone in the class. These teachers scaffolded instruction and used alternative methods of assessment outside of traditional paper and pencil exams. Perhaps most importantly from the perspective of CRP, these teachers encouraged students to think critically about their communities and develop the tools to analyze inequities. Students in these classrooms not only demonstrated better literacy outcomes, but also behavioral and social outcomes (Ladson-Billings, 1992).

Table 1

Propositions of CRP with Examples

Propositions	Examples of Teacher Beliefs & Behavior
1. Conception of self and others	<ul style="list-style-type: none"> • Believe all students are capable of success • View their pedagogy as art • View themselves as members of the community • View teaching as a way to give back • Believe in idea of pulling knowledge out
2. Manner in which social relations are constructed	<ul style="list-style-type: none"> • Maintain fluid relationships with students • Demonstrate connectedness with all students • Develop a community of learners • Encourage students to collaborate and hold each other accountable
3. Conception of knowledge	<ul style="list-style-type: none"> • Believe knowledge is shared, recycled, and constructed • Believe knowledge must be viewed critically • Teachers must be passionate about knowledge and learning • Teachers must scaffold to facilitate learning • Assessment must be multifaceted

Note. Information in this table is provided as described by Ladson Billings (1995), pp. 478-481.

Although the tenets of CRP have been questioned as being merely “good teaching” practices (Ladson-Billings, 1995, p. 484), questions remain regarding teachers’ implementation of CRP in their classrooms. In 2010, Young sought to collaborate with eight teachers and their principal to implement CRP in their classrooms. The principal of the school was Latina and committed to increasing performance of her students. Teachers were chosen from a lower-performing elementary school with a diverse student body comprised primarily of minorities. Five teachers participated, only one of whom was Black, along with the principal and the principal intern, who was White. Young collected eight forms of data: (a) pre/post interviews with participants regarding their understanding of racism in education, (b) eight group meetings in which participants read and reflected upon assigned articles, (c) eight follow-up meetings with the principal and intern discussing the group meetings, (d) one classroom observation per teacher assessing various elements related to culturally relevant teaching, (e) participants’ written responses to researcher prompts given each week, (f) documents from the school district such as its plan to close the achievement gap and a presentation on how this plan would be implemented, (g) text from online discussions amongst participants if questions were not resolved during their meetings, and (h) the researcher’s own field notes.

From her thorough collection and analysis process, Young (2010) discovered that teachers demonstrated confusion regarding their understanding of CRP. For instance, when discussing the achievement component, participants indicated a need to select materials and instruction that is relevant for students, but not in terms of using it to foster growth and learning. When discussing cultural competency, participants focused more on

the superficial aspects of “feel-good curricula” (p. 252), like getting to know the students and building relationships with them. This stands in contrast to more meaningful instruction of competency in which the students themselves become more competent, developing better understandings of their own cultures as well as the predominant culture and inequities between the two. Of greatest concern was the fact that participants neither discussed sociopolitical consciousness, nor did any of the district documents. It appeared their focus was more on raising test scores rather than helping students understand how to challenge the status quo that works against them.

According to Young (2010), the greatest discrepancy between CRP as it was originally conceived versus how it was understood in this sample was that whereas cultural relevance was developed based on characteristics of the teachers, teachers in the study thought of it in terms of characteristics of their students. In addition, participants’ understanding of culture in this study was structured around student characteristics (e.g., family, background) as opposed to features of the larger cultures within students’ schools and communities. During teacher observations, Young identified they were capable of incorporating achievement and competence into their instruction, but only the single minority teacher engaged in substantial discussions about social issues facing students of color (e.g., racism).

Ultimately, Young (2010) concluded that while teachers on the surface expressed an interest in using the tenets of CRP within their instruction, they were hesitant to do so because of a reliance on traditional instruction methods and confusion regarding how to incorporate CRP in a meaningful way. Teachers were consumed by the requirements of

No Child Left Behind, asserting they had to teach the standard curriculum and could not figure out how to integrate CRP without taking away from what students needed to know to pass their exams. One teacher, for example, brushed over the colonization of Florida by the Spaniards but spent time discussing the details of pilgrims arriving at Plymouth Rock, despite the relevance of the former topic to the majority of her students. She blamed it on the common core standards. In addition, when questioned about the lack of discussion surrounding social justice issues, another teacher felt her third graders were too young to be learning about racism, even though by their age these issues are being discussed at home and students are aware of basic inequities. Young (2010) deduced that not only does NCLB appear to be maintaining the status quo despite its purpose as written, but teacher education programs are not doing a sufficient job of preparing these individuals to use CRP and identify biases inherent in the educational system. She concluded by stating that while the theoretical underpinnings of culturally relevant pedagogy are good to know, implementing them in the real world is a more challenging feat that has not yet been figured out (Young, 2010).

A year after this study, other researchers expressed concern with the fact that proponents of CRP were not publishing aspects of the theory that could actually be empirically studied (Brown-Jeffy & Cooper, 2011). In response, they sought to merge the components of CRP with those of CRT. CRT focuses on inequities with the educational system specifically in regard to racial differences and White power. Brown-Jeffy and Cooper's conceptual framework of this merged model is presented in Figure 1. Through this model, they argue that acknowledging cultural differences is not enough. The authors

make a distinction between equal opportunity and equity, denouncing equal opportunity as ignoring students' diverse learning needs. Teachers need to come to understand that these differences should be viewed as strengths for minority students. It should be noted, however, that although learning styles are included in this framework, CRP recommends shifting away from learning styles to teach students of different backgrounds (Howard & Rodriguez-Minkoff, 2017) because learning styles have not been supported by research (Holmes, 2016).

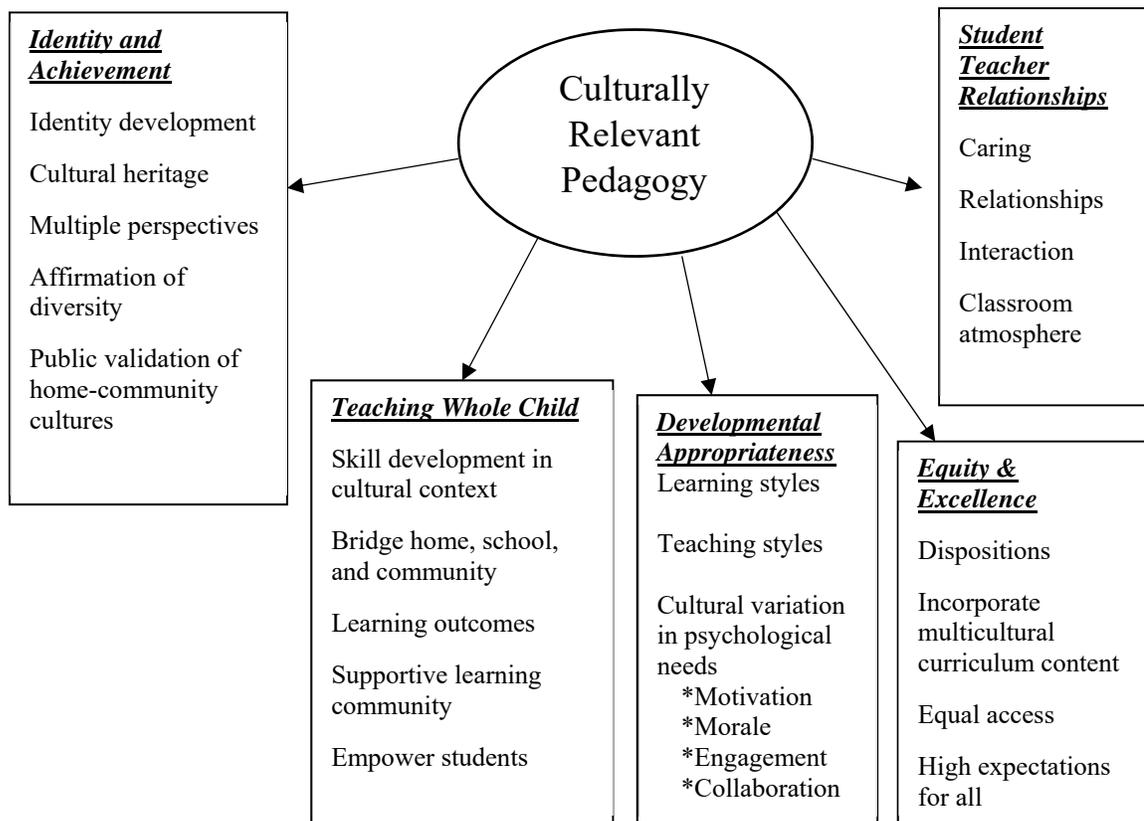


Figure 1. Principles of Culturally Relevant Pedagogy Aligned with Critical Race Theory. Source: Brown-Jeffy and Cooper (2011), p. 72.

CRT and CRP overlap as it pertains to recognizing and combating societal oppression of minorities (Brown-Jeffy & Cooper, 2011). Additionally, this combined model emphasizes the need for teachers to consider the whole student in their instruction. This includes students' macro and microculture influences (e.g., community, family, race), factors that are missing from extant literature on CRP (Milner, 2017). The authors suggest that when teachers do this, coupled with showing genuine interest in getting to know more about their students, it motivates these students toward learning. It is expected that the behaviors outlined in this CRT/CRP model go beyond the theory and can actually be applied in classrooms. Teachers can also have opportunities to learn more about how to engage in these behaviors by watching others model them (Brown-Jeffy & Cooper, 2011).

In a literature review of CRP research regarding race in language arts and math, Milner (2017) identified a series of shortcomings in the literature and, similar to Brown-Jeffy and Cooper (2011), offers a set of "testable features of CRP" (p. 25; see Table 2). From the articles analyzed, Milner (2017) concluded that despite race being a keyword in the article, it was largely absent from these studies aside from a superficial labeling of demographic variables. He therefore argued that researchers of CRP should direct their attention back to race in more meaningful ways, including analysis of the sociopolitical and historical influences that shape students. Researchers also missed opportunities to explore the interactions between teachers and their students in regard to race, instead focusing on one or the other.

Table 2

Testable Features of Culturally Relevant Pedagogy

Adopt learner lenses: Teachers should learn about their students' experiences.

Engage in critical self-examination and reflection: Teachers engage in introspection and encourage students to self-reflect, both considering how they affect harmony in the classroom without blaming the other.

Make the culture of power explicit: Teachers make explicitly clear the power structure as well as expectations and rules.

Use accessible, relevant language: Teachers are clear and do not use inaccessible language.

Caring and empathetic attitudes and dispositions: Teachers try to collaborate with students to problem solve; they do not view student as the enemy.

Rejection of deficit thinking: Teachers view students as knowledgeable and contributing members of the classroom.

Cultural and racial awareness and understanding: Teachers attempt to connect to students' cultural and racial heritage.

Avoid color-blind ideologies: Teachers acknowledge race as a central dimension of who students are; attempt to know whole student.

Development and maintenance of trust: Teachers show care and establish bonds with students through treatment and expectations of students as well as building classroom community.

Parental and community partnerships: Teachers develop partnerships with parents to understand and scaffold learning and behavior in the classroom.

Multiple opportunities: Teachers do not give up on students easily; they realize that many students are not used to experiencing success and help students "see the other side."

Avoid placing students' destiny in the hands of others: Teachers take responsibility for students' learning and futures because they know the students better than anyone else in the school.

Develop and maintain high expectations: Teachers push students for success and refuse to water down the curriculum; they refuse to grant students permission to fail.

Realize that each student is an individual: Teachers realize each student brings different sets of needs that must be met.

Be stern and fair: Teachers are clear that they expect excellence, but maintain fairness.

Use humor: Teachers know it's acceptable to laugh, but frame it within their authority status.

Develop a frame of mind for success: Teachers genuinely believe their students can and will succeed.

Milner's (2017) findings reiterate the persistent concern over decades of CRP research that there is a significant dearth of quantitative studies across contexts (e.g., Sleeter, 2012). Milner proposed an increase in mixed methods studies, acknowledging that the qualitative data is valuable, but would be buttressed by quantitative measures supporting links between CRP and important student outcomes. He also outlines the conflation of culturally relevant and culturally responsive pedagogies as utilized throughout the research (Milner, 2017). If researchers have difficulty distinguishing between the two, practitioners will struggle even more so.

In another literature review conducted the same year, the authors covered research conducted on CRP to make recommendations for practice for teachers regarding awareness, instruction, and assessment of diverse learners (Howard & Rodriguez-Minkoff, 2017). Again, these authors reiterated the research to practice gap in that educators do not seem to fully understand how to implement CRP in the real world (Young, 2010). In addition, they expressed concern regarding how educators conceptualized culture. When individuals "essentialize" culture, they apply their beliefs about that culture universally among its in-group members (p. 18). This can be particularly detrimental in terms of stereotypes guiding instruction, which would prevent CRP from being effective.

Looking toward the future, Howard and Rodriguez-Minkoff (2017) identified four primary areas in need of additional research. Of note, teachers should consider methods of assessment that take cultural differences into account. Evaluation of instruction should also be more systematic to support how CRP can improve student outcomes. Doing this

will allow for more proper selection of assessment materials, intervention practices, and program development opportunities. In addition, an area in need of exploration is teacher ideology. The authors suggested that deficit thinking, or viewing individuals as inherently less capable because of a characteristic like race, may be the greatest challenge in trying to get teachers to use CRP. Finally, issues surrounding instruction as outlined by the CCSS provide teachers with less flexibility in adjusting the curriculum. This coincides with Young's (2010) findings that participants reported they could not figure out how to incorporate CRP in their instruction without deviating too far from the established curriculum to meet CCSS requirements. In order to overcome these restrictions, Sleeter (2012) asserts that three things must occur: (a) incorporating more evidence-based research that CRP directly impacts student outcomes like achievement, (b) teaching adults in the learning community (i.e., leaders, teachers, parents) about CRP and how it is implemented, and (c) overcoming teachers' deficit thinking, as discussed earlier.

Ultimately, CRP is an important theoretical framework to guide teachers working with students from underrepresented populations (e.g. minorities, low income). It appears, however, that in addition to meaningful investigations of race missing from this literature (Milner, 2017), differences based on socioeconomic status are absent as well (Howard & Rodriguez-Minkoff, 2017). Furthermore, the CCSS have presented teachers with a significant challenge, which is how to effectively incorporate CRP into instruction while still teaching to the targeted learning goals (Howard & Rodriguez-Minkoff, 2017; Sleeter, 2012; Young, 2010). This is especially difficult when teachers do not fully grasp the tenets of CRP (Young, 2010) and already demonstrate lowered cultural competence

due to the majority of teachers being middle class White women (Howard & Rodriguez-Minkoff, 2017; Ladson-Billings, 1995).

Concerns over the the lack of instruction on social justice and empowerment appear to be warranted, limiting students' understanding of their strengths as minorities and how to critique the status quo. Although numerous studies have reported some sort of improved student outcome (e.g., academic achievement) as a result of CRP (Howard & Rodriguez-Minkoff, 2017), the severely limited use of quantitative methodologies in the field, along with small sample sizes, preclude these findings from being applied to the greater population. Additional evidence of the effects of CRP for minority students is needed. However, the stress on academic achievement as a predominant outcome of interest in the literature takes the form of test scores, which is a narrow interpretation of what Ladson-Billings (2006) conceptualized when she initially used the term achievement (Ladson-Billings, 1995). She envisioned culturally relevant pedagogy as a tool to promote learning in the more general sense that could then be applied in multiple contexts. At the core of CRP, Ladson-Billings hoped that by engaging students' abilities and interests while supporting their cultural identities, students would be motivated to learn and subsequently do so, ultimately leading to improvement on more formal measures of achievement. As it stands, many of the concerns established through CRP remain unaddressed.

In recent years, government agencies have attempted to develop methods for encouraging schools to work toward closing these gaps. Such efforts included additional funding for low-income schools (i.e., Title I) and holding individuals accountable for

student learning (e.g., No Child Left Behind). As a result, schools began to adopt programs for change, including Comprehensive School Reform (CSR). Government funding in support of CSR was most often awarded to schools with large populations of minority students from low-income families (Gross et al., 2009). Unfortunately, however, these reform efforts have shown to be ineffective, primarily for students in underrepresented groups (Gross et al., 2009; Shippen et al., 2006).

In a study of elementary schools in Texas that earned government grants toward implementing CSR, researchers discovered that reading did not improve as a result of these programs (Gross et al., 2009). Data on standardized achievement measures from nearly 500,000 third- through eighth-grade students were analyzed and compared across schools receiving funding and non-funded schools matched on a variety of variables. Nearly 80% of the student sample was ethnic minorities and approximately 70% was of low socioeconomic status. Aggregate scores were compared between schools, as were individual scores between students.

Surprisingly, no significant growth was identified for reading ability within or between schools, suggesting that CSR as implemented in these schools was not achieving its primary task (Gross et al., 2009). This finding reiterated that of Shippen and colleagues (2006), who similarly discovered no positive effects of CSR on reading for middle school students who were Black and served in special education. It should be noted, however, that Gross et al. (2009) did find that while math achievement scores improved somewhat when comparing scores on the student level, this was only true for the students who were in the baseline group (i.e., non-minority, non-disabled, middle

class or higher). In fact, the reverse effect was shown for students of minority backgrounds whereby their scores actually decreased over the 8-year span. These results indicate that change efforts as they are currently being practiced are not having the intended effect for all students, even when those students comprise the vast majority of the school's population. Perhaps incorporating the tenets of CRP into instruction either independently or in conjunction with other reform efforts would be a more effective method to improve reading across diverse student populations. In doing so, instruction would be tailored to meet students' needs while also instilling within them the desire to learn—an essential component of promoting student growth.

Motivation

People are motivated to engage in various activities for any number of reasons. In education, students may be motivated to engage in a particular behavior because it is extrinsically motivating; there are outside influences impacting their desire to complete a task (Deci & Ryan, 1985). In classrooms these could include things like competition, a desire to fit in with peers, or rewards like extra credit or receiving a grade for an activity (Wigfield & Guthrie, 1997). In contrast, the type of motivation teachers should be fostering is intrinsic motivation, defined as doing something because it is enjoyable in its own right without the need for external rewards (Deci & Ryan, 1985). In classrooms, the ultimate goal should be to get students to want to learn for the sake of learning alone (Csikszentmihalyi, 1997; Ladson-Billings, 1995, 2006). The desire to learn leads to a plethora of positive outcomes across contexts and, according to Csikszentmihalyi (1997), learning is the key to happiness.

Intrinsic motivation is a result of the interaction between individuals' values, goals, interests, and view of the self (Cantrell et al., 2017; Ho & Guthrie, 2013; Linnenbrink & Pintrich, 2003; Rheinberg, 2008). Linnenbrink and Pintrich (2003) describe three ways in which values, goals, and interests can influence motivation. First, when individuals are interested in an activity or topic, they are more motivated to pursue that activity. Second, intrinsic motivation can increase when the activity is thought to be useful to the individuals. Third, if individuals see a connection between the activity and their broader life goals, they will likely be motivated to pursue that activity (Linnenbrink & Pintrich, 2003). Rheinberg (2008) expands upon this, stating that intrinsic motivation is further enhanced when the reasons for engaging in the activity are generally positive. Thus, people want to do things because they are enjoyable. Moreover, individuals are more likely to want to participate in an activity if they feel competent in that domain (Guthrie et al., 2009; Lee & Zentall, 2012; Melekoglu & Wilkerson, 2013; Wigfield & Guthrie, 1997).

In classrooms, this intersection of being interested in an activity, valuing that activity, linking it to one's larger goals, and enjoying that activity can be a difficult combination to achieve. Nevertheless, when these features merge, students experience greater intrinsic motivation, leading to increased engagement in an activity (Cantrell et al., 2017; Klauda & Guthrie, 2013; Wigfield & Guthrie, 1997) on a greater number of occasions (Lee & Zentall, 2012; Wigfield & Guthrie, 1997) and improved performance as a result (Guthrie et al., 2009; Ho & Guthrie, 2013; Klauda & Guthrie, 2015; Lee & Zentall, 2012; Melekoglu & Wilkerson, 2013). In the context of reading, this typically

occurs when people read because they are looking for adventure or want to learn something new (Guthrie et al., 2009). When students are intrinsically motivated to read, they read up to three times as much as students who do not have this motivation, a relationship that exists above and beyond initial reading amount and is stronger than that of external motivation and time spent reading (Wigfield & Guthrie, 1997). The mere act of repeatedly engaging in an activity is likely to improve one's skills, leading to achievement gains.

For the purposes of this study, students' motivation to read is of particular interest. In a study conducted by Guthrie and colleagues (2009), they sought to compare motivation between Black and White fifth graders in relation to a reading motivation profile. To determine this profile, the researchers developed a measure of reading motivation consisting of four potential contributing factors: avoidance, perceived difficulty, self-efficacy, and intrinsic motivation with the former two being considered undermining and the latter, affirming. These factors were found to exist in contrasting pairs consisting of one undermining and one affirming aspect each. To determine readers' motivation profile, the researchers combined student scores on avoidance and intrinsic motivation to obtain four variations of high/low combinations. From most to least positive, these profiles describe readers as avid, ambivalent, apathetic, or averse.

If students are avid readers, they have high intrinsic motivation to read coupled with low avoidance, both within school as well as during leisure time. These readers are expected to perform best on measures of reading comprehension. Ambivalent readers report high scores on both intrinsic motivation and avoidance. These readers are

motivated to read under some circumstances more than others, likely preferring leisurely reading over school-related reading. Readers who are apathetic score low on both factors. These readers are not overly interested in reading, but do not actively avoid it either. External rewards may be needed to encourage these students to read. Finally, aversive readers demonstrate low intrinsic motivation and high avoidance. These students demonstrate basic literacy skills, but are not interested in reading and actively avoid it. Based on these profiles, Guthrie and colleagues explored differences between students according to race and examined the relationship between students' motivation to read and measures of reading ability.

Guthrie and colleagues (2009) found that while there were no significant differences between races and reading profiles likely due to a low number of Black participants, White students were disproportionately categorized as avid readers, whereas Black students were categorized more as apathetic or ambivalent. Avid readers scored significantly higher than all other groups on reading comprehension and reading fluency. Interestingly, intrinsic motivation was related to comprehension ability only for students who were White. In contrast, avoidance more strongly related to reading ability than did intrinsic motivation for students who were Black. This relationship between race, reading motivation, and achievement could be one explanation for the achievement gap in reading. Moreover, they found that the composite reading motivation profile was a better predictor of reading achievement than either of the factors considered alone. From these findings, the researchers asserted that there are actually multiple factors that play a role in determining a student's motivation to read and these should be favored over explaining

motivation based on a single component. Taking race into consideration, they concluded that when Black students struggle in reading as indicated by external factors (e.g., grades), they may be more likely to quit (Guthrie et al., 2009), perhaps because greater levels of motivation push students to try harder and persevere when faced with challenges (Cantrell et al., 2017). This harkens back to the importance of CRP and its potential for moderating this negative outcome.

In addition to race, other researchers have sought to explore differences in reading motivation between students with varying levels of reading ability (Lee & Zentall, 2012). Elementary students with and without reading disabilities, as classified based on standardized reading scores, completed measures of reading motivation and reading involvement. Students with reading disabilities scored significantly lower than their peers without disabilities on self-efficacy for reading, intrinsic motivation, and extrinsic motivation, but higher on avoidance. They also reported reading less outside of school settings. These differences became evident beginning in the second grade (Lee & Zentall, 2012). This should be alarming to educators considering the effects of self-efficacy and motivation on achievement across time. These results indicate that poor performance could stem from motivational issues from essentially the beginning of an individual's academic career. Moreover, if students continue to perform below expected levels despite putting forth effort, they may develop a mindset of learned helplessness, feeling like their efforts are pointless (Linnenbrink & Pintrich, 2003). This outlook can discourage students and provoke them to disengage entirely from education. Again, this necessitates

that teachers understand how to motivate their students to engage in activities they otherwise may not enjoy by catering to their values and interests.

Other researchers have expanded upon this by considering the relationship between reading motivation and reading ability as it pertains to reading achievement (Klauda & Guthrie, 2015; Melekoglu & Wilkerson, 2013). A longitudinal study of seventh graders conducted by Klauda and Guthrie (2015) addressed motivation and engagement for reading and their presumed effect on reading achievement. On two occasions, students completed a series of assessments including standardized measures of reading fluency and comprehension, a researcher-developed measure of comprehension, and a reading motivation survey. While the relationships between motivation and engagement as well as motivation and achievement were equal across ability groups, there were meaningful differences in how engagement played a role. Although the direct effect of engagement on achievement was lower for students with higher reading abilities, coupled with motivation, the effects became greater for this group. Also interesting is the fact that avoidance of reading was not a significant predictor of achievement for students having reading difficulties. Together these results concerned the researchers because the findings suggested that students with lower reading abilities have subsequently lower motivation and engagement, both of which are shown to directly influence reading achievement. However, the fact that engagement has a strong effect on achievement for students with RD is encouraging (Klauda & Guthrie, 2015). If teachers can cultivate that engagement in conjunction with intrinsic motivation, these students may begin to perform better in reading.

Although the positive outcomes of intrinsic motivation in the classroom have been well documented, discussions around the ways in which teachers can develop this motivation are more limited. One suggestion has been to allow students more control over their activities, giving them options from which to choose with assistance from the teacher rather than having the teacher dictate how students spend their time (Hofferber et al., 2016; Mackenzie et al., 2014). For teachers of minority and other underrepresented groups, other possibilities may be found in the discussions of culturally relevant pedagogy (Brown-Jeffy & Cooper, 2011; Ladson-Billings, 1995; Milner, 2017). It should be noted, however, that all of the motivation studies discussed above sampled participants of White middle class backgrounds at much higher rates, even when race was the focus of the research (Guthrie et al., 2009). Thus, it may be the case that these findings differentially apply to minority students, though this has yet to be explored further. Nevertheless, the impact of motivation on achievement suggests that intrinsic motivation can be a critical factor to overcome reading deficits. I posit that flow theory may offer additional concrete ways to foster students' motivation and subsequent achievement.

Flow Theory

Flow theory was first introduced by Csikszentmihalyi (1975) through his studies of artists and other creative individuals. He was interested in how these individuals could be so fully immersed in an activity that they would lose touch with the outside world and yet no longer be invested once the activity was complete (e.g., painting a picture). Csikszentmihalyi calls this state of deep concentration flow, which is akin to what some call being in the zone (Challco et al., 2016; Kennedy, Miele, & Metcalfe, 2014). Over the

last 40 years, flow theory has been used to describe activities in all aspects of life including leisure, work, and school. Although not all individuals experience flow in the same contexts, every person has the ability to enter a flow state and any type of activity can lead to flow under the right circumstances (Nakamura & Csikszentmihalyi, 2005). Based on its application in education and its direct relationships with motivation and achievement, flow theory may provide reasonable accommodations for instruction teachers can use with their students who have diverse learning needs.

Flow Model

The way flow is understood has gone through a few iterations over the years, though the current model has not strayed too far from the original. As it was first proposed, flow theory was presented as a channel (see Figure 2) in which people could enter one of three psychological states depending on how their perceived abilities matched with the perceived challenge of a task (Csikszentmihalyi, 1975). The first is of course a flow state, which can occur when skills and challenge are at the same level. This meant individuals could experience flow whether there was a low/low, medium/medium, or high/high balance. According to the theory, not only will this experience lead to happiness and motivation, but it also facilitates more efficient use of cognitive resources (Moneta & Csikszentmihalyi, 1996). Essentially, people are exerting effort to achieve a goal without feeling like it (Moneta & Csikszentmihalyi, 1996). Moreover, there does not appear to be a limit to this experience. That is, there is no ceiling effect of flow (Moneta & Csikszentmihalyi, 1996), so as individuals' skills increase, increasing the difficulty of activities will allow them to continue achieving this state.

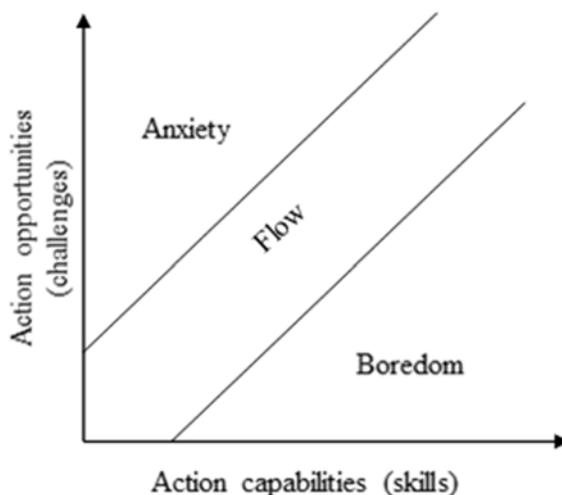


Figure 2. Original Flow Model. Adapted from Nakamura and Csikszentmihalyi (2005), p. 94.

The two other states depicted in the original flow model are aversive, or anti-flow, states (Nakamura & Csikszentmihalyi, 2005). One aversive state is boredom, which was initially thought to occur when skills are high but the challenge is low, though this later changed. The other aversive state is anxiety, which occurs when skills are low but the challenge is high. Through additional research, it was learned that flow actually only occurs when the skills and challenge are above average for a given individual (Csikszentmihalyi, 1997), leading to the quadrant model of flow (see Figure 3). This meant that flow no longer occurred when skills and challenge were low. Instead, the quadrant model proposed that individuals experience a state of apathy when there is a low/low balance (e.g., watching television; Csikszentmihalyi, 1997), which is believed to be the least desirable compared to the other three (Moneta, 2012; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003).

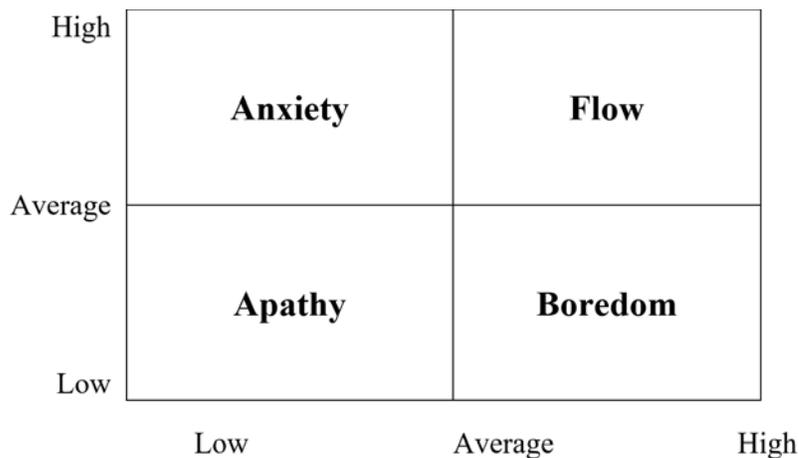


Figure 3. Quadrant Model of Flow with Challenge on the Y-Axis and Skill on the X-Axis. Adapted from Moneta (2012).

Additional research using experience sampling data revealed that there were in fact even more psychological states that fit within this framework. The current model of flow therefore depicts eight psychological states depending on the balance between one's skills and task challenge (see Figure 4). Here, one of the biggest changes was the replacement of boredom at the high/low octant with relaxation (Csikszentmihalyi, 1997). This experience is accompanied by positive affect and mostly occurs in leisure time when individuals are spending time with loved ones, for example. If, however, individuals' abilities continue to exceed the challenge presented by an activity, over time they may shift to boredom (Csikszentmihalyi, 1997). Boredom in this model lies between apathy and relaxation. It is expected to occur during routine activities, like chores or grocery shopping. There is also the addition of three new states that previously were unaccounted for in the quadrant model.

Worry occurs when one's skills are low and they are presented with a medium challenge, which is likely to occur in work or educational settings (Csikszentmihalyi,

1997). As one moves closer to aligning skills and challenge, they can experience arousal or control. Csikszentmihalyi (1997) asserts that aside from flow, these two states are the best to facilitate learning because one can easily make slight changes either in skill or challenge to reach flow. The difference between the two, as he describes, is that in arousal, individuals are concentrated on tackling the high challenge task, but are not happy because their skills are not quite high enough. In control, the reverse is true; they are happy, but are not as deeply concentrated because the task is not challenging them enough. Neither of these states, though, provide the optimal experience (Csikszentmihalyi, 1997).

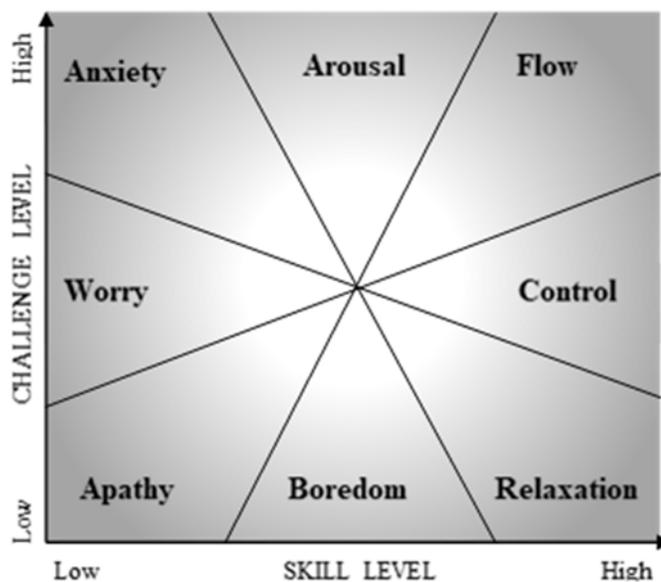


Figure 4. Current Flow Model. Adapted from Csikszentmihalyi (1997).

In flow theory, there are nine characteristics established as being necessary for a flow state to occur. Since the initial list was developed, these nine have been separated such that three are considered conditions that are in place before flow and six are part of

the experience itself (Beard, 2015). These conditions include clear goals, immediate feedback, and a balance between one's perceived skills and the perceived challenge associated with an activity (Csikszentmihalyi, 1997). When these conditions are simultaneously present, individuals are said to have experienced flow if there are feelings of deep concentration, action-awareness merging, being in control, loss of self-consciousness, transformation of time, and an autotelic experience (i.e., intrinsic rewards). Resesarchers also suggest that there is a person by situation interaction to consider whereby not every individual approaches each activity the same and there will therefore be variations in whether or not flow occurs (Nakamura & Csikszentmihalyi, 2005; Rheinberg, 2008). Additionally, there are other characterstics researchers have identified as likely precursors (e.g., personality traits) or outcomes of flow (e.g., improved performance) in some situations. Each of these will be discussed in greater detail to follow, but it is first important to understand how these constructs are measured.

Measurement of Flow

With increasing interest in understanding flow across domains, researchers have sought to develop new ways to measure flow. There are three general ways to collect data on flow: interviews, experience sampling methods, and questionnaires. When flow measurement began, Csikszentmihalyi (1975) used interviews to obtain rich qualitative data about individuals' experiences while in a flow state (Nakamura & Csikszentmihalyi, 2005). Analysis of these data led him to create the flow questionnaire (FQ; Csikszentmihalyi & Csikszentmihalyi, 1988; Moneta, 2012). The FQ began by providing participants with a series of quotes gathered in his interviews that he believed best

represented a flow experience. The questionnaire then asks participants to state whether they have ever experienced those things and, if so, provides additional prompts to gather more specific information regarding the circumstances under which they have been in flow. Although this is one of the better methods for identifying whether or not one had a flow experience, data on the intensity of flow and the precise skill/challenge balance leading to these experiences cannot be understood (Moneta, 2012). Additionally, questions remain regarding its validity (Jackman, Crust, & Swann, 2017). Although the flow questionnaire is currently seldom used, Jackman and colleagues (2017) recommend incorporating interviews back into flow research. Specifically, they suggest using event-focused interviews, which occur immediately following a flow experience (Jackman et al., 2017). The data gleaned from these interviews provide a more complete picture of what is occurring in flow in its natural context (Nakamura & Csikszentmihalyi, 2005).

The next method adopted was the experience sampling method (ESM; Csikszentmihalyi & Larson, 1987). ESM data are collected at random moments throughout the day in an attempt to understand the circumstances under which flow is occurring. Participants are provided with a paging mechanism (e.g., watch, cell phone) and are beeped at random intervals. When beeped, they must immediately fill out an experience sampling form (ESF) containing open-ended questions about their current context (e.g., what they are doing, who they are with) and scaled questions about their experience (e.g., concentration, emotion). This method of data collection has been widely used throughout the flow literature and is considered to be useful insofar as external validity across settings (Moneta, 2012). One issue with this form of data collection,

however, is that flow states are assessed on the basis of a few constructs that do not capture the entirety of the flow experience (Nakamura & Csikszentmihalyi, 2005; Rheinberg, 2008). Another is concern over whether or not individuals interpret the scales in the same way, potentially requiring standardization before comparison (Moneta, 2012). Nevertheless, this is the one method that can provide self-report data while an individual is actually in a flow state.

The third tool to collect flow data is a survey measure. To date, there are two primary questionnaires used that assess flow states: the Flow State Scale 2 (FSS-2; Jackson & Ecklund, 2002) and the Flow Short Scale (Rheinberg, Vollmeyer, & Engeser, 2003). As developed, the intent of these measures is not to categorically determine whether or not flow occurred, but rather to evaluate the components of flow and easily compare them across individuals and situations (Nakamura & Csikszentmihalyi, 2005). The FSS-2 consists of 36 questions designed to measure the nine components of flow as well as flow overall (Jackson & Ecklund, 2002). This method has been repeatedly shown to be valid and reliable, especially when the components are considered separately. Furthermore, the FSS-2 functions similarly across multiple domains with little to no adjustments necessary (Jackson & Ecklund, 2002). Although it continues to be administered relatively often, there are a number of concerns with its use.

For one, as stated above, it is not intended to be used to establish whether or not flow occurred (Jackman et al., 2017; Moneta, 2012; Nakamura & Csikszentmihalyi, 2005). In one study, the authors attempted to identify a cut-point above which one could be considered to have a flow experience (Kawabata & Evans, 2016). When comparing

measurement techniques, however, Jackman and colleagues (2017) noted that it grossly overidentified the occurrence of flow when compared to FQ data, in turn “imposing” flow on nearly everyone (Moneta, 2012, p. 40). Another concern is that each of the flow components are evaluated independently in the FSS-2 without consideration for whether they are a condition or indication of flow (Moneta, 2012). Ultimately, this measure is viewed as being too simple to thoroughly evaluate flow.

As an alternative to the FSS-2, the Flow Short Scale was developed (Rheinberg et al., 2003) in Germany and has since been translated and adapted to provide a more meaningful assessment of flow than the FSS-2 (Engeser & Rheinberg, 2008). This survey can be completed in less than a minute, making it extremely efficient to administer under time constraints, such as in classrooms, or on multiple occasions. There are 16 scaled items to assess the components of flow, perceived importance, and the skill/challenge balance for a particular activity. This method is psychometrically sound and accounts for every facet of flow while also including the additional aspect of perceived importance, which has been shown to influence individuals’ interest in and value of an activity (Linnenbrink & Pintrich, 2003) as well as moderate the relationship between skill/challenge balance and flow (Engeser & Rheinberg, 2008).

Ultimately, each of these methods is useful in providing some sort of fruitful data. Interviews can provide in-depth accounts of individual flow experiences along with the exact conditions that fostered this state, though collecting this data is more involved and difficult to validate. The flow questionnaire emerged from Csikszentmihalyi’s initial interview data and describes to participants what it means to be in flow. It is the only

measure that provides a dichotomous representation of whether or not flow occurred, but it is unable to describe all aspects of flow in detail. Experience sampling similarly provides authentic accounts of flow at the moment one is actually in that state, but there are questions about its completeness and bias toward scale responses. Finally, quantitative survey measures were developed including the FSS-2 and the Flow Short Scale. Both are valid and reliable, though the Flow Short Scale is more economical and allows individuals to be easily placed in the octant model. Ultimately, researchers suggest utilizing a mixed methods approach consisting of a questionnaire and interviews to obtain the most meaningful, comprehensive depiction of a flow experience for an individual (Jackson & Marsh, 1996).

Components of Flow

As stated earlier, there are nine general components of flow as established in flow theory (Csikszentmihalyi, 1997). These consist of three conditions and six indicators of flow, each of which must be present to some degree to experience a flow state. For this study, the two components of greatest interest are skill/challenge balance and autotelic experience. Each of these are directly related to other psychological constructs including self-efficacy and motivation, both of which can directly influence performance and achievement.

Conditions of flow. One condition of entering a flow state is that individuals have clear goals for the particular activity (Csikszentmihalyi, 1997; Jackson & Marsh, 1996; Nakamura & Csikszentmihalyi, 2005). When clear goals are established, there is less room for ambiguity and people know exactly what needs to be done to accomplish the

goals. This has been supported through research in educational settings in which researchers have found that establishing explicit goals can lead to improved concentration on relevant stimuli (Hofferber et al., 2016) and reading comprehension, even when outside distractions are introduced (Tilstra & McMaster, 2013). Moreover, when abstract goals related to an activity are made concrete, opportunities for intrinsic motivation to develop may be increased (Rheinberg, 2008). For students with disabilities, this concept is mirrored in their individual education plans in which there are overall goals that tend to be more abstract accompanied by more specific, measurable objectives that collectively accomplish that abstract goal.

Another condition of flow is that individuals receive clear, immediate feedback on their performance in an activity. This feedback can come from within the individual or from the activity directly (Jackson & Marsh, 1996). An outside person delivering feedback is not necessary in every circumstance. In many instances, individuals know when they are succeeding at accomplishing a goal. In sports, for instance, it is apparent when one is doing well. In school, however, it may be less obvious, particularly for students with disabilities. In large classrooms, some teacher-led activities do not offer students the feedback they require (Egbert, 2003), particularly when they cannot monitor their own performance, potentially prohibiting students from entering flow. Teachers should explicitly scaffold instruction and encourage students to identify when they are doing well. This allows them the autonomy to engage in an activity and potentially experience flow in it without the need for someone else's assistance.

The third condition, skill/challenge balance, is perhaps the most valued and well-studied of the flow components (D’Mello & Graesser, 2012; Engeser & Rheinberg, 2008; Fullagar et al., 2013; Keller & Blomann, 2008; Kennedy et al., 2014; McQuillan & Conde, 1996; Moneta & Csikszentmihalyi, 1996; Schweinle, Turner, & Meyer, 2008; Shernoff et al., 2003). This is perhaps not surprising, considering the flow model orients the possible psychological states around this balance. Based on the model, individuals will only enter flow if their skills and challenge are higher than they experience on average across situations (Jackson & Marsh, 1996; Nakamura & Csikszentmihalyi, 2005). In addition, challenges should slightly exceed skills to “just-manageable levels” (Nakamura & Csikszentmihalyi, 2005, p. 90). Assuming skills are improved upon through each flow experience, challenge should be increased accordingly when engaging in that activity later to maintain this balance. With each iteration of the activity, one’s skills should gradually improve to meet task demands, which supports “skill stretching” (Nakamura & Csikszentmihalyi, 2005, p. 94).

Research has shown there are various positive outcomes when skill and challenge are balanced and relatively high. In studies of children, adolescents, and adults, this balance has corresponded to increases in motivation (Keller & Blomann, 2008; Shernoff et al., 2003), engagement (McQuillan & Conde, 1996; Moneta & Csikszentmihalyi, 1996; Shernoff et al., 2003), affect and enjoyment (Keller & Blomann, 2008; Moneta & Csikszentmihalyi, 1996; Schweinle et al., 2008), involvement (Keller & Blomann, 2008), concentration (Moneta & Csikszentmihalyi, 1996), and learning (D’Mello & Graesser,

2012). In one study, this balance alone explained over one-third of the within person variability of flow (Fullagar et al., 2013).

An early study investigating this balance was conducted by Moneta and Csikszentmihalyi (1996) on high school students' flow experiences across the span of one week. These adolescents were chosen based on being identified as "talented" by their teachers. It should be noted that this practice of sampling only highly skilled individuals is limited in its applicability to the overall population, yet has been used often in flow research, particularly in early years. Students were asked to complete an ESF each time they were beeped, which occurred eight times per day over one week. This ESF evaluated the skill/challenge balance as well as four indicators of flow: concentration, wish to be doing something else, involvement, and happiness. From the qualitative portion of the surveys, four contexts were identified as worthy of exploration. These included students' time in school, with family members, with friends, and alone. Using hierarchical linear modeling, the researchers analyzed how skill and challenge independently as well as collectively (i.e., balance) influenced the four indicators across contexts.

They found that skill alone positively predicted concentration, involvement, and happiness in all contexts. Challenge alone positively predicted concentration and involvement in all contexts, and happiness in all contexts except spending time with friends. Balance, however, where significant, demonstrated negative relationships with the dependent variables. Given balance was calculated using an absolute difference score between skill and challenge, this would mean that as this difference value gets higher (i.e., greater imbalance), scores on the dependent variables get lower. In regard to

concentration, balance was negatively related only when students were in school or alone. For happiness, balance was negatively related across all contexts. Interestingly, school was the only context in which balance was negatively related to involvement. This suggests that adolescents in school are most affected by this balance such that concentration, involvement, and happiness all decrease as skills and challenges diverge. The authors concluded by stating that flow may be better applied to situations when there is something to be achieved, like in school (Moneta & Csikszentmihalyi, 1996). Based on the findings from their talented sample, they also made assumptions about how lower achieving students would be expected to respond, which will be considered in a later discussion.

Other important research on the skill/challenge balance was conducted by Engeser and Rheinberg (2008) with college students in three different studies. In each study, the researchers investigated the effects of skill and challenge on flow as well as potential moderators of these relationships. The studies included students in a statistics course, students playing a computer game, and students learning a foreign language. These contexts were selected based on the varying degrees of importance they were assumed to have for college students, statistics being of high importance, computer games being of low importance, and foreign language learning being of medium importance. Only those related to school learning will be discussed here. In both of these studies, participants completed the Flow Short Scale on two occasions across a semester. Initial skill level was assessed at the beginning of the semester and performance was measured again at the end of the semester.

In an activity considered to be of high importance, the researchers found that while flow does depend on skill and challenge, the balance between them did not have a role. Flow did decrease, though, when the challenge was too high. This indicated that when an activity is viewed as important, flow may still be experienced even when the challenge is below one's skill level. A similar pattern was identified for an activity deemed to be of medium importance whereby flow was still relatively high even when skills surpassed challenges. Nevertheless, when students experienced flow in these conditions, their performance on an end-of-semester assessment was higher than students who did not experience flow, even after controlling for initial knowledge and ability (Engeser & Rheinberg, 20008). Thus, this study demonstrates not only how flow may be experienced differently based on perceived importance, but also the critical relationship between flow and achievement. This emphasis on importance aligns with CRP and making sure that students are engaged in activities that are personally relevant and interesting. Moreover, the study findings support the notion that when challenges become too great, flow decreases, potentially leading students to experience anxiety.

The negative consequences of experiencing anxiety due to a skill/challenge imbalance in which challenge exceeds skill can be detrimental to student progress. In a study of music students, nearly half (47%) of the variability in performance anxiety was found to be explained by the imbalance between perceived skills and difficulty of a music piece (Fullagar et al., 2013). Experiencing anxiety regularly due to this imbalance can lead students to retreat from challenges rather than approach them as opportunities for growth. Researchers have shown that when this occurs, students have a heightened sense

of self-consciousness (Nakamura & Csikszentmihalyi, 2005), which may explain their reduced concentration, involvement, happiness (Keller & Blomann, 2008; Moneta & Csikszentmihalyi, 1996; Schweinle et al., 2008), engagement (D'Mello & Graesser, 2012; Keller & Blomann, 2008), motivation (Keller & Blomann, 2008), and reading achievement (Guthrie et al., 2009; Ho & Guthrie, 2013) in academic settings.

What is important to note when evaluating balance is the notion that it is perceived skill and perceived challenge that matter rather than skill and challenge in objective terms (Nakamura & Csikszentmihalyi, 2005). Students have diverse learning needs and therefore an activity that may be considered highly challenging for one individual could be viewed as very easy for another. For reading activities in school, this can be difficult for teachers to manage without giving students some control over instruction. Teachers have access only to objective data from test scores and grades that inform them of students' skill levels. If students do not perceive their skills accurately, instructional methods and materials selected by the teacher could quickly move a student from a potential flow experience to one of anxiety or boredom. One way to better understand these perceptions is by way of students' self-efficacy beliefs, or the degree to which one feels capable of completing a task (Bandura, 1986) because these play a critical role in determining perceived task difficulty, skill/challenge balance, and ultimately, motivation and achievement.

Self-efficacy. Self-efficacy beliefs relate to how well an individual feels he or she can perform in particular situations (Bandura, 1986). According to Bandura (1993), there are three types of self-efficacy that can influence education. The first is student self-

efficacy, which is perhaps the most commonly studied. Student self-efficacy relates to their perceptions regarding self-regulation of learning, motivation, and achievement. This is the type of primary importance in the present study. The second is teaching self-efficacy, which measures teachers' perceptions of their abilities to foster student learning and growth. The third is collective efficacy, which includes teachers' perceptions of their school's and faculty's abilities to promote student achievement (Bandura, 1993).

Individual self-efficacy tends to be measured in terms of specific domains, such as reading (Pajares, 1996; Shell et al., 1989) and writing (Bruning, Dempsey, Kauffman, McKim, & Zumbrunn, 2013). Therefore, these assessments can be used to provide teachers with information on each student that may help them tailor instruction to that student's needs.

Self-efficacy beliefs about reading have been repeatedly shown to contribute to increases in student motivation (Guthrie et al., 2009), effort (Cantrell et al., 2017), and reading achievement (Carroll & Fox, 2017; Ho & Guthrie, 2013; Lee & Jonson-Reid, 2016; Proctor et al., 2014; Shell, Colvin, & Bruning, 1995; Wigfield & Guthrie, 1997). In fact, a summary of self-efficacy research indicated that perceptions of one's skills affects achievement to a similar degree as does one's actual skills (Pajares, 1996). Students with low self-efficacy beliefs have also been shown to exhibit less resilience and determination when challenged (Bandura, 1997), put forth less effort, quit more easily (Bandura, 1997; Cantrell et al., 2017; Guthrie et al., 2009), and engage less in academic activities (Bandura, 1997), a finding that appears to be true across ages, genders, and ethnicities (Linnenbrink & Pintrich, 2003).

In a study of Norwegian fifth graders, Solheim (2011) investigated the impact of reading self-efficacy on reading comprehension for multiple choice and constructed response questions. Reading materials covered both fiction and non-fiction content and questions required students to engage in recall, inferencing, summarizing, and evaluating various components of the texts. As expected, reading self-efficacy scores positively predicted comprehension, though this differed by question format. When students had lower efficacy beliefs in reading, they performed significantly worse than did students with higher efficacy beliefs only on the multiple choice questions. Self-efficacy was not a significant predictor of comprehension as assessed using open-ended questions.

Solheim asserted that this may be caused by the structure of multiple choice questions themselves in terms of word count and answering strategies. She posited that perhaps the multiple choice questions appeared daunting to students with low efficacy beliefs for the simple fact that there are more words to read and interpret compared to constructed response questions. It is also possible that these students are hindered by response options using other people's words or they view the complexities and nuances of answering multiple choice questions as more challenging (Solheim, 2011). This finding coincides with the fact that students with low efficacy universally use less effective cognitive strategies for learning (Bandura, 1997; Linnenbrink & Pintrich, 2003). In terms of current practices, this is a significant obstacle to reading development and learning in education considering the vast majority of standardized reading assessments only consist of multiple choice questions. Perhaps if these students were given more opportunities to demonstrate reading comprehension in other ways they would perform

better and in turn increase their self-efficacy beliefs. As a result, students may be able to overcome the negative outcomes of low self-efficacy discussed earlier.

Although self-efficacy has been studied extensively across domains, it is seldom if ever used in flow research aside from a survey item or two asking about perceived skill, which differs from self-efficacy in that these individual items are task-specific versus domain-specific. This is surprising considering Bandura's (1993) assertion that students with lower self-efficacy beliefs about their ability to manage challenge in school are more prone to experience achievement anxiety, an explicit connection made in flow theory. In a study of flow, researchers reported that challenge had a direct relationship with flow experiences and anxiety whereas perceived skill did not (Fullagar et al., 2013). Instead, skill acted as a moderator between these variables, suggesting that challenge impacts these experiences in different ways based on skill level. Specifically, students who had low perceived skill did not demonstrate a relationship between perceived challenge and flow experiences whereas those who had moderate to high perceived skill were influenced by task difficulty (Fullagar et al., 2013).

Similarly, in a study of elementary students and motivation (i.e., not flow research), perceived skill as measured by self-efficacy was no longer a significant predictor of reading achievement after controlling for perceived difficulty (Guthrie et al., 2009). A strong relationship exists between these two variables, though (Ho & Guthrie, 2013), which suggests that students' perceived skill is most likely affecting perceived difficulty, which in turn predicts flow, anxiety, motivation, and performance. Seeing as students with reading disabilities can display lower self-efficacy by the time they are in

second grade (Lee & Zentall, 2012), it is essential that teachers use instructional methods to make them feel confident in their abilities. Part of this includes identifying activities that challenge students enough to encourage skill development, but not so much that they feel defeated. It also requires teachers to use CRP so that students from underrepresented groups are not defeated by trying to meet the standards designed around White middle class children. The inherent difficulties with ensuring this can occur are first, whether or not students' self-efficacy beliefs are accurate, and second, whether or not their teachers are aware of such potential discrepancies. For the purposes of this study, how self-efficacy beliefs compare to actual abilities will be referred to as alignment.

There has not been much research investigating the accuracy of students' self-efficacy beliefs, particularly in reading, though what has been done suggests that these beliefs tend to be inaccurate (Corkett et al., 2011; Linnenbrink & Pintrich, 2003) in favor of overestimating one's abilities, particularly for Black students and students with disabilities (Pajares, 1996; Whitehurst et al., in preparation). Why these relationships exist has yet to be explained in the research, but based on flow theory and the effects of self-efficacy on a host of academic outcomes, this may work in students' favor.

According to the research, as long as students are somewhat confident in their abilities, they may be more willing to tackle challenging tasks and therefore continue to improve their skills (Linnenbrink & Pintrich, 2003). It is unknown, however, whether the positive effect of this overestimation has a ceiling effect, after which motivation and engagement will decrease because students think they already know something when they actually do not (Linnenbrink & Pintrich, 2003).

Corkett and colleagues (2011) sought to explore this concept of alignment in two ways. They first examined whether students' beliefs were accurate based on their reading and writing abilities according to standardized assessments. They then asked teachers to report on their students' efficacy; that is, what the teacher thought each student believed. They also measured teacher efficacy. This study was conducted in sixth-grade classrooms in a Catholic school. Students' self-efficacy in this study was found to be uncorrelated with achievement, suggesting that their beliefs are inaccurate. Furthermore, teachers appeared to be poor at estimating their students' efficacy beliefs. Teachers in this study seemed to base their judgments on their own self-efficacy for teaching such that if they believed themselves to be capable teachers, they also believed their students felt like capable learners (Corkett et al., 2011). This has clear and direct implications for instruction, particularly when considering CRP, skill/challenge balance, and promoting flow and motivation. Teachers should be made aware of their students' efficacy beliefs and use those to guide their decision-making as opposed to actual achievement scores. Considering such significant differences were identified in a parochial school study with all White teachers and predominantly White middle class students, it is probable that these discrepancies would be even greater in more diverse schools. Such separation between teachers and students will only contribute further to the achievement gap. Here, too, CRP can provide guidance to better align teachers with their diverse students. Nevertheless, because of the direct relationship between self-efficacy and improved student outcomes, teachers may want to spend time with students who report efficacy beliefs below their achievement levels to bring these into alignment.

Other conditions. Aside from the universal conditions explicitly named within flow theory, there are other factors that can influence flow. These include both person and situational factors, such as perceived importance as discussed earlier (Engeser & Rheinberg, 2008), personality traits (Csikszentmihalyi, 1997; Jackson & Ecklund, 2002; Johnson, Keiser, Skarin, & Ross, 2014; Nakamura & Csikszentmihalyi, 2005; Ullen et al., 2012), or characteristics of an activity itself (McQuillan & Conde, 1996; Nakamura & Csikszentmihalyi, 2005; Shernoff et al., 2003). Whereas perceived importance and activity characteristics may be context specific and therefore vary within individuals, the personality trait thought to best predict flow is considered constant across situations. Csikszentmihalyi (1997) labeled this trait as autotelic personality.

Someone with an autotelic personality in essence is intrinsically motivated in multiple contexts and has various characteristics (e.g., curiosity) that allow them to experience flow more often than someone who is not autotelic (Jackson & Ecklund, 2002; Nakamura & Csikszentmihalyi, 2005). This trait has also been called flow proneness (Ullen et al., 2012). Individuals who are more prone to entering flow states were found to have higher self-esteem and self-efficacy beliefs framed as perceived ability. In addition, flow proneness correlated with other personality characteristics (e.g., neuroticism), but not with intelligence (Ullen et al., 2012). Again, these findings reiterate the importance of perceived ability rather than actual ability in predicting flow experiences.

Characteristics of a situation also impact flow. In academic settings, the influence of activity type can be substantial. In a study of flow in sixth- through 12th-grade

students, researchers used ESM to determine the types of activities adolescents engaged in most while in school, the features of the activities conducive to flow, and related outcomes (Shernoff et al., 2003). They found that there were five primary types of activities students reported doing during their school day. The most common type was individual work followed by listening to teacher-led lectures. Other activities included taking exams, watching videos, and doing group work, in that order. Student scores indicated they entered flow more often during group work or individual activities and least during lectures (Shernoff et al., 2003). In another study, students also reported enjoying work group (Cantrell et al., 2017). Given the importance placed on collaborative communities in classrooms described by culturally relevant pedagogy (Ladson-Billings, 1995), it is disappointing that this form of instruction is offered so infrequently. Others have categorized these activities into active (i.e., individual, group, exams) and passive (i.e., lectures, videos) types, asserting that students reported increased flow during active rather than passive schoolwork (Nakamura & Csikszentmihalyi, 2005).

Based on open-ended responses asking what students were thinking about when beeped, students appeared to pay attention 73% of the time when they were in a flow state compared to 42% in apathy and 58% in boredom (Shernoff et al., 2003). When in anxiety, students paid roughly the same amount of attention (70%) as in flow, but this was likely experienced as stressful and hindering performance rather than improving it as one would expect in flow.

Students were also more engaged when they reported higher perceived difficulty of an activity. Apathy was the psychological state identified as having the lowest positive

ratings overall. In general, while core content classes were identified as challenging and important, students were more motivated to engage in their non-academic classes (Shernoff et al., 2003).

In terms of flow during English language arts specifically, not much has been studied in the past 20 years. Reading across contexts was initially one of the more researched topics in the earlier days of flow theory, but not much has been done since then. One primary study on reading and flow was conducted on adults across cultures in which researchers asked about reading habits and preferences in general (McQuillan & Conde, 1996). It therefore was not specifically related to academic settings. Nevertheless, of all activities in which participants had flow experiences, 20% said they most often entered flow states while reading. This was primarily true, however, for fiction and narrative texts as well as texts read during individuals' leisure time. Outside of these conditions, assigned texts, like those given in school, were only conducive to flow if the topic engaged the reader's interest (McQuillan & Conde, 1996). In a separate study, the researchers also found that narrative text was related to achievement and enjoyment versus informational text that students did not enjoy (Ho & Guthrie, 2013), suggesting again that literary writing may be more flow-inducing.

In sum, flow states are achieved when three conditions are met: clear goals, immediate feedback, and balance between one's perceived skills and perceived challenge of an activity. Balance is the most studied condition and has been shown to directly influence a variety of outcomes including motivation, engagement, and achievement. Aside from the task-specific indicators used in flow research, self-efficacy can be a sound

way to measure individuals' perceived skills. More research is needed, however, to determine the accuracy of these self-efficacy beliefs and how teachers can utilize knowledge of their students' beliefs to optimize instruction, particularly for diverse student populations.

Other factors may also contribute to flow, including personality traits and situational characteristics. In school settings, individual and group work provided students the greatest opportunities to enter flow, though group work was the least frequently assigned. In addition, flow is seen more when reading narrative text versus expository text. Given that research on flow and class activities has been scarce for over a decade, it is necessary to revisit this considering the array of positive outcomes that can be achieved through flow. A better understanding of these activities and processes can aid teachers in developing instruction aimed at improving academic and behavioral outcomes for students by way of engaging their interests and motivating them to learn.

Indicators of flow. There are six essential indicators that must be present for flow to occur. These are deep concentration, action-awareness merging, sense of being in control, loss of self-consciousness, altered sense of time, and an autotelic experience. In addition, other positive outcomes of flow have been identified through research including positive affect, motivation, and achievement. Each of these independently plays an important role in schooling for adolescents.

Deep concentration may be considered a hallmark of a flow experience (Nakamura & Csikszentmihalyi, 2005). Concentration is also paramount to achievement and growth (Shernoff et al., 2003), likely by being the first indicator allowing students to

enter a flow state. Before any of the other indicators are present, one must be intensely focused on the activity (Beard, 2015). Such concentration is what makes it seem like time has flown by (Jackson & Ecklund, 2002), for example. It also gives way to action-awareness merging, the sense that behavior is occurring almost automatically as individuals become “one with the activity” (Beard, 2015, p. 358; Jackson & Marsh, 1996). Hyperattention on the activity also makes it nearly impossible for individuals to be consumed with thoughts of the self (Jackson & Marsh, 1996). Self-consciousness can be a particular hindrance for children and adolescents because they may spend so much time worried about what their peers think of them, they can no longer devote the attention necessary to deeply process information (Csikszentmihalyi, 1997).

Feeling in control is also a direct result of deep concentration, particularly when confronting a challenging task (Cermakova, Moneta, & Spada, 2010; Jackson & Marsh, 1996). Individuals with a sense of control are more engaged (Shernoff et al., 2003), happy, and involved in an activity (Keller & Blomann, 2008). In addition, academic settings that foster autonomy, instilling the feeling that students are in control of their own education, has been shown to improve learning (Hofferber et al., 2016; Mackenzie et al., 2014). Students report feeling in greater control when they are working alone or in groups, which may explain the increased opportunities for flow under those circumstances (Shernoff et al., 2003).

Insofar as education, perhaps the most important indicator of a flow state is the autotelic experience. This is essentially an intrinsic reward individuals feel when accomplishing challenging tasks (Csikszentmihalyi, 1990). According to

Csikszentmihalyi (1997), the ultimate goal of education is to encourage students to want to learn inherently for the purpose of learning and growth. This mirrors the concept of achievement as described in CRP (Ladson-Billings, 1995). When individuals have an autotelic experience in flow, this reward is what intrinsically motivates them to engage in that activity again (Keller & Blomann, 2008; Nakamura & Csikszentmihalyi, 2005) and engage in it more frequently (Engeser & Rheinberg, 2008). To return to a flow state, the difficulty level must be increased in each subsequent activity, forcing students to expand their skills to meet the challenge (Nakamura & Csikszentmihalyi, 2005). It is believed that everyone can become intrinsically motivated to do almost any activity if they experience flow in it (Nakamura & Csikszentmihalyi, 2005).

Autotelic experiences may also be the primary flow component that leads to positive affect (Engeser & Rheinberg, 2008; Schweinle et al., 2008), enjoyment (Hofferber et al., 2016; Shernoff et al., 2003), and feelings of accomplishment (Shernoff et al., 2003). It is therefore likely that the direct effect of skill/challenge balance on intrinsic motivation (Keller & Blomann, 2008) is through this sense of reward. In conjunction with the earlier discussion regarding the relationship between motivation and achievement, it logically follows that flow has been linked to improved academic achievement in a number of studies (Engeser & Rheinberg, 2008; Golub, Rijavec, & Olcar, 2016; Nakamura & Csikszentmihalyi, 2005; Rheinberg, 2008).

Flow in Education

You can start with something that the child doesn't like to do or is prejudiced against or feels inferior to, but if you can make the other things come in—the

clarity of goals, the feedback, the balance of challenge and skill, the uninterrupted concentration on it—you have a chance. (Csikszentmihalyi, 1997, p. 11)

In the present study, I addressed opportunities for students in a Title I high school to experience flow while reading in their language arts classes, examining differences between students with and without reading disabilities. It is therefore worthwhile to review the effects of flow on education as well as consider areas in need of further exploration. Moneta and Csikszentmihalyi (1996) assert that structured activities make flow more likely because there are opportunities to control the skill/challenge balance to improve learning. This means that school settings could be an ideal place for students to discover activities that interest and appropriately challenge them to increase concentration (Moneta & Csikszentmihalyi, 1996; Nakamura & Csikszentmihalyi, 2005), flow, motivation, and ultimately achievement. It is the responsibility of teachers, then, to aid students in determining what educational activities they enjoy and help focus their attention when engaged in these activities (Ladson-Billings, 1995; Nakamura & Csikszentmihalyi, 2005). This will subsequently increase students' opportunities for flow during school, a setting that has been shown to more often be associated with anxiety and boredom (Csikszentmihalyi, 1997).

Based on findings from flow research in education settings, adolescents report experiencing anxiety during math and science, but boredom in social studies and the humanities (Csikszentmihalyi, 1997). Similarly, they pay less attention in English than in other classes (Shernoff et al., 2003). This suggests that many students may perceive the tasks required of them in language arts classes as too easy for their abilities. High school

may present unique opportunities for students to pursue their interests because they are offered some control over which courses they take (Schweinle et al., 2008). For some students, however, particularly those with disabilities, it may be recommended to place them in settings that do not present them with substantial challenge. In students' IEPs, for example, despite the requirements, there have been instances in which goals and objectives are not changed from one year to the next or CCSS standards and objectives are selected that are much below students' grade levels. This significantly limits these students' chances of engaging in activities that will lead them into deep concentration and flow (Beard, 2015), inhibiting their motivation for learning and achievement. In another example, teachers who have a deficit thinking approach to their diverse students based on their race or socioeconomic status would be less likely to offer sufficient challenges, believing they are incapable of learning more advanced skills or material (Howard & Rodriguez-Minkoff, 2017). It may be that the greatest changes in motivation and achievement could be observed in these population, though, if teachers are aware of how to create the right environment.

Unfortunately, little research to date on flow and motivation has been conducted on students with disabilities or from low income populations. Most of this research is conducted with White middle class students of moderate to high skill (Schweinle et al., 2008). Moreover, although loose connections between flow and motivation can be assumed based on engagement, for example, direct relationships are not present in the literature. It is also challenging to merge research from the fields because while flow is typically studied among older students and adults, motivation is more often studied in

elementary and middle school students. Although there is evidence of stability of performance in reading across time (NAEP, 2018), issues affecting high school students from low income families are quite different from younger students. Pressures to work or take care of younger siblings, for example, can significantly impact their ability to concentrate in class. Confronting issues of social injustice may also become more of a reality when students are older. In regard to efficacy, it is also possible that as students age, lower self-efficacy beliefs over the years lead to expectations of failure causing them to not even try (Linnenbrink & Pintrich, 2003; Melekoglu & Wilkerson, 2013). The pressures of high school also weigh heavily on students, specifically concerns of getting into college or obtaining employment after graduation. These differences fail to be accounted for in the extant literature. Additionally, of those few motivation studies that have addressed underrepresented student populations, they ignore the issue of CRP. The components of CRP can play a critical role in motivating and engaging minority students as well as those from low-income families to take control of their education and invest their time in academic pursuits.

More recent studies of flow with adolescents have also been limited in context, primarily in regard to specific classroom activities. Rather than being conducted within natural educational contexts (Shernoff et al., 2003), this research focused on experiential intervention research or experimentally manipulating flow in lab settings. While this may be useful in understanding how flow functions more generally, it is less applicable to the overall student population. Many school cultures require teachers to follow more traditional curriculum targeting the mandated standards, which sometimes results in

teaching specifically to the standardized assessments (Milner, 2017; Sleeter, 2012; Young, 2010). Teachers at these schools would likely not be open to more experiential methods of instruction (e.g., Mackenzie et al., 2014) or incorporating CRP (Young, 2010), despite potential benefits for students.

Recent research has also neglected opportunities for flow during reading in school, even though this is a key skill for academic and career success. Reading motivation has been a topic of interest, but has not been linked with flow in the past. Moreover, despite the direct influence of self-efficacy on perceived difficulty and skill/challenge balance, this variable has not been explicitly studied in the context of flow. Furthermore, researchers of flow and motivation tend to rely primarily on survey data and ESM for flow specifically. The information gleaned from qualitative interviews is missing from these bodies of work. Without this knowledge of students' understanding of these experiences, it is challenging if not impossible to gain a full picture of what is happening. In turn, recommendations for practice are limited by just the numerical data for groups as a whole rather than considering the diverse needs of individual students.

In the present study, I sought to address many of these concerns by not only studying underrepresented groups in education research (i.e., low income, minority, students with reading disabilities), but also by collecting data specifically about reading activities using surveys, ESM, and interviews. From these data, I aimed to identify characteristics of particular activities leading to flow both for the group as a whole across students as well as based on individual accounts from students with reading disabilities in low-income families. Relationships between self-efficacy, reading ability, and reading

motivation were explored, expanding our understanding of how these variables interact to promote flow. Trends were also identified regarding instruction for these students in terms of engagement and motivation and recommendations for teachers are discussed.

CHAPTER III

METHODOLOGY

Background

The purpose of this study was to examine 10th-grade students' flow experiences during reading activities in language arts classrooms in a Title I public charter school. In addition, this research provides insight regarding possible differences in these experiences based on students' disability category, gender, and motivation for reading. Thus, the study addressed the following research questions:

1. How do students perceive the skill/challenge balance during classroom activities involving reading? Does greater balance predict entering a flow state in this sample?
 - 1a. Are students' perceptions of their reading abilities (i.e., self-efficacy beliefs) accurate when compared to their performance? What effect does disability category or gender have on this alignment?
2. Does the type of classroom reading activity predict a student's ability to experience flow? Which activities are more conducive to students entering a flow state?
3. Does disability classification (i.e., having reading difficulties or not) predict a student's reading motivation profile? Is this relationship mediated by flow experiences during reading activities?

4. How do students with and without reading difficulties describe their flow experiences during leisure and school activities, particularly reading?

Hypotheses

The following hypotheses were tested:

- Students who experienced greater balance between perceived skill and task difficulty during reading activities would be more likely to enter a flow state.
- Students with RD were expected to show greater deviations in alignment between perceived and actual reading ability, likely erring toward overestimation.
- Activities in which students were offered choice and those in which students could interact with one another were expected to predict flow more so than were independent activities imposed on students.
- Students with reading difficulties were expected to be higher on the avoidance subscale of reading motivation and therefore have ambivalent or averse motivation profiles. If these students experienced flow more often during reading, however, it was anticipated that they may demonstrate lower avoidance motivation and greater intrinsic motivation.

Design

This study investigated flow experiences of students enrolled in language arts courses with the same teacher. Therefore, a case study design was appropriate given the specificity of the sample (Baxter & Jack, 2008; Stake, 1995). Specifically, this was an instrumental case study because the research was guided by issues (i.e., reading and flow)

as opposed to the case itself (Stake, 1995). It also was a descriptive case study because the intention was to describe students' experiences in the context in which they naturally occurred (Baxter & Jack, 2008; Yin, 2003). I adopted a constructivist approach (Guba & Lincoln, 1982) in which knowledge was thought to be constructed based on students' individual experiences within a particular time and context. As such, constructivists assume that each student would have different interpretations of the same events and activities within their classroom. In the present sample, the teacher represented the larger case with students being the embedded cases, which allowed for analysis within and across these sub-units (Baxter & Jack, 2008).

Examples of data analyzed within a case study include observations, interviews, and documents. For this study, interview data were collected along with documentation, including a reading assessment and surveys. Ultimately, the information obtained from these various sources was converged to describe students' experiences of flow within this case. Two types of triangulation were used to support the credibility of this study. The first was analyst triangulation, in which multiple researchers examined the qualitative data to confirm whether or not they drew the same conclusions as the primary researcher (Patton, 1999). Interrater reliability was also assessed for qualitative data analyses. The second type of triangulation was methods triangulation, in which quantitative and qualitative results were compared (Patton, 1999).

This case study followed an explanatory sequential mixed methods design (Creswell & Plano Clark, 2011). This design was optimal because its purpose is to allow for qualitative data to explain initial quantitative findings. In an explanatory sequential

design, quantitative data are collected during the first wave. These data consisted of a reading assessment, surveys, and experience sampling forms (Csikszentmihalyi & Larson, 1987). The quantitative data were then analyzed using descriptive and inferential tests. The findings from these analyses were used to guide the qualitative inquiry in the second wave. Specifically, these results provided insight into which aspects of the quantitative data were worth probing further to gain a deeper understanding. Interview questions were formulated to tap into those aspects. Participants selected for interviews were chosen from a purposeful sample based on reading motivation profiles. Once the interview data were collected, they were analyzed using inductive coding to determine overarching themes (Hatch, 2002; Spradley, 1979). Findings across datasets were then compared and summarized into a thorough overview of how students from low-income families, particularly those with disabilities, experienced flow during reading activities in a language arts class and which characteristics may be more conducive to entering flow.

Setting

Data were collected in a suburban public charter school in the southeast. The school serves grades K-10 and had a total student population of 418 in the 2017-2018 school year (74% eligible for free and reduced lunch, 60% female, 82% Black, and 7% with disabilities). Student participants were divided among three classes, two in the morning with eight and 13 students, respectively, and one in the afternoon with six students. All classes took place in the same location, a large classroom on the school's third floor. In this classroom, students sat dispersed at individual desks facing a large whiteboard and the teacher's desk in the left corner.

Participants

For this study, I collected data from 22 10th-grade students attending a suburban Title I public charter school in the southeast. Inclusive general education 10th-grade language arts classes in high poverty and Title I schools were eligible for participation. This sample was selected because the teacher expressed interest in understanding more about her students' engagement and attitudes toward reading. These classes were also of interest because of the existing cultural differences between the teacher and students.

Students were recruited after formal approval by the school's principal and commitment from their language arts teacher. Once a teacher was identified and provided consent for participation, students' parents were notified of the study and their permission was requested allowing their children to participate. After obtaining parental permission, a researcher introduced the study to students and asked for their participation. Students who agreed to participate submitted a signed assent form. Two students in the class verbally opted out of the study, one did not return an assent form, and four did not return parent permission forms. Students who did not take part in the study continued to participate in class as usual and completed other assignments in lieu of the study measures.

Demographics of the teacher and student participants were collected using researcher-developed surveys (see Appendix A). The teacher was a White female who has 3 years of teaching experience and is licensed in reading K-12, English as a second language K-12, and Spanish clearance. At the time of this study, she taught Literature and Composition, British Literature, Spanish II, and World Geography. She has 3 years of

experience working with students with disabilities and low-income populations. She identified her socioeconomic status as middle class.

There were 22 student participants (16 females) in the 10th grade with an average age of 15.77 ($SD = .43$). Students were predominantly Black (67%) or White (23%). Within this sample, one individual was receiving special education services for reading under IDEA and four other students were receiving targeted interventions for reading (Tier 2) as part of Response to Intervention (RTI). The teacher indicated that these students should be in Tier 3, but the formal paperwork had not yet been completed. Two additional students were identified as having reading difficulties based on reading assessment scores resulting in seven total students (32%) with RD for the purposes of this study. Although some form of data were collected from each student during at least one phase, responses on all measures were only collected from 18 individuals. This may have been due to absences or students not returning the measures to their teacher. Ultimately, 18 students completed the GMRT and 21 completed the Flow Short Scale on at least one occasion. All students completed the initial set of surveys.

Measures

Reading Ability

Students' reading ability was assessed using the Gates-MacGinitie Reading Test® Fourth Edition (GMRT-4), which is a norm-referenced multiple choice assessment that provides information about vocabulary and reading comprehension (MacGinitie, MacGinitie, Maria, & Dreyer, 2000, 2002). For the purposes of this study, only the comprehension portion was administered. The comprehension test is timed at 35 minutes

and consists of 11 passages and 48 questions that require explicit interpretation of the text as well as inferencing. At the 10/12 level, four passages are fiction, three are social science, three are natural science, and one is humanities. Six passages are therefore expository texts, four narrative, and one setting, meaning a portion of a text where there is no progression across time. The tests are intended for class-wide administration via paper-and-pencil surveys. Students with disabilities as well as those from Title I schools were included in the initial standardization of the GMRT, so it is therefore an appropriate assessment tool for this sample.

There are 10 levels of the assessment based on grade level ranging from kindergarten through adulthood. For this study, students completed level 10/12, which is intended to assess reading ability for students in grades 10 through 12. Ten students completed form S and nine completed form T. Three students were absent the day these were administered and did not complete the assessment. Another student stopped halfway through and did not attempt to finish, so his responses were excluded from analyses. Answer sheets were hand-scored and scores were converted into percentiles and grade equivalents based on the most recent GMRT norms. The GMRT allowed for identification of students with reading difficulties as those who scored at or below the 25th percentile (Denton et al., 2015). This cutoff was selected based on previous research in which test levels could not be accommodated based on student performance data.

Given the standardized nature of the GMRT, it has undergone rigorous reliability and validity testing. Reliability coefficients for both versions of the test at the 10/12 level are above .90. (range .90-.95) for students in all three grades (MacGinitie et al., 2002).

Both versions also demonstrated test-retest reliability with coefficients above .91 at retest (range .91 to .96). In addition, test developers took precaution to reduce any cultural bias in the test questions. They consulted with 15 experts of different backgrounds and ran differential item functioning analyses to remove any items that may have introduced bias. Passages in the comprehension portion of the test also have lead characters of different genders and ethnicities to represent those students taking the test and increase the relevance of the material, which can increase validity of the scores.

Flow Proneness

To evaluate flow proneness, students completed the translated and adapted 14-item version of the Swedish Flow Proneness Questionnaire (SFPQ; Ullen et al., 2012). For this study, the SFPQ was adapted in two ways. First, the prompt for the first seven items that were designed to assess flow proneness during work activities (i.e., “When you do something at work, how often does it happen that . . .”) was changed such that in place of “work” it read “school” to better evaluate this construct in the setting of interest (see Appendix B). Second, the portion pertaining to household work or routine chores was removed as it is not of interest in this study. The portion pertaining to leisure activities was retained. Although this scale has traditionally been used with adult samples ages 18 and above (e.g., de Manzano et al., 2013; Keller & Blomann, 2008), there is no reason to believe it would not function similarly for young adults in high school participating in the current study.

Each section of the survey has seven items that tap into whether or not an individual has the ability to enter flow in general across activities. Answers were

provided using a 5-point Likert scale where 1 was *never* and 5 was *every day or almost every day*. This measure provides both subscale and global measures of flow proneness. To obtain scores for each subscale (i.e., FP-school and FP-leisure), responses to the Likert scale were averaged within each set of seven items. To obtain scores for overall flow proneness (FP-total), all items were averaged across. A confirmatory factor analysis supported the validity of this measure. Furthermore, this measure demonstrated good reliability across the original samples with Cronbach alpha values ranging from .83 to .85 and split-half coefficients ranging from .87 to .88. In the present sample, the leisure scale was reliable ($\alpha = .73$) as was the adapted school scale ($\alpha = .76$). The global flow proneness measure was also reliable ($\alpha = .85$). Scores on this measure were used preliminarily to confirm that there were no differences between students' proneness to enter a flow state based on reading ability or gender.

Reading Self-efficacy

To measure students' self-efficacy beliefs about reading, they completed an adapted version of the Reading Self-Efficacy Instrument (RSE) developed by Shell and colleagues (1989). The original survey was developed for use with undergraduate students and asked respondents to rate their confidence in their abilities to read and understand 18 types of reading material (e.g., "A short fiction story") as well as perform 9 reading skills (e.g., "Recognize letters"). Responses were recorded on a scale ranging from 0 (*no confidence*) to 100 (*complete confidence*) and scores were obtained by averaging across items within each subscale. Although another version of this measure was developed for use with children (Shell et al., 1995), an adapted version of the

original survey was preferred for use in this study for a number of reasons (see Appendix C).

In the study describing development and testing of the children's version of the RSE, the authors stated they drastically reduced the number of items and changed the response scale because the original measure was too long and too complex, particularly for their fourth- and seventh-grade students. The edited measure had only five items per subscale and a 5-point response scale (1 = *I'm sure I can't*, 5 = *I'm sure I can*).

According to Bandura (2006), a response scale from 0 to 100 is preferred because those with fewer "steps" demonstrate lower reliability due to decreased sensitivity (p. 312).

This may partly explain why the reliability coefficients for the children's version were substantially lower (.72 for reading task and .62 for reading skill) than those on the original adult version (.92 for reading task and .93 for skill). Furthermore, their 10th-grade sample that used the children's version demonstrated possible ceiling effects likely due to the accommodations made for younger students, particularly in regard to the response scale. Thus, the original version was slightly modified for the present study and now is a reliable measure of high school students' self-efficacy beliefs of reading.

For this study, all nine items within the skill subscale were retained, but three from the task subscale were removed due to irrelevance for students in high school (i.e., "a rental contract for leasing an apartment," "an automobile insurance contract," and "a scholarly article in a professional journal in your field"). In addition, two items pertaining to introductory and graduate level textbooks within one's major field were revised into a single question: "A textbook in a class you enjoy." It is assumed that when a person

chooses a major, it is a field in which he or she is interested; therefore, this revision taps into a similar concept that is applicable to students in high school. In the current sample, the adapted task subscale ($\alpha = .92$) and the skill subscale ($\alpha = .94$) remained highly reliable for high school participants.

Reading Motivation

To evaluate components of reading motivation, students completed the Reading Motivation Questionnaire (RMQ), an 18-item survey with four subscales (Guthrie et al., 2009). Each subscale targeted a particular construct identified in prior research as directly influencing students' motivation to read. These included six items measuring intrinsic motivation (e.g., "Is reading boring to you?"), six items measuring avoidance (e.g., "Do you read as little as possible?"), three items measuring self-efficacy (e.g., "Can you sound out long words?"), and three items measuring perceived difficulty (e.g., "Do you need extra help in reading?"). Responses were provided on a 1-4 Likert scale ranging from *never* to *always* (see Appendix D). One item in the perceived difficulty scale was reverse coded. Scores were obtained by summing across the items within each subscale.

This scale was originally tested separately on two groups of children, one Black and one White. Each subscale was reliable for both groups with intrinsic motivation having a reliability coefficient of .82, avoidance ranging from .79 to .85, self-efficacy ranging from .57 to .72, and perceived difficulty ranging from .68 to .77. It should be noted that the lower reliabilities in the test sample occurred for Black participants. In the present sample, intrinsic motivation ($\alpha = .89$) and perceived difficulty were reliable ($\alpha = .84$) whereas the avoidance subscale approached sufficient reliability ($\alpha = .68$). The

self-efficacy scale was not reliable ($\alpha = .27$). This is not a concern, however, because students completed a separate measure of self-efficacy for this study.

The RMQ was designed to aid in identification of reading motivation profiles based on combinations of intrinsic motivation and avoidance. For this study, students were classified into these profiles based on their scores on the two subscales mentioned. Students were considered avid readers if they were high on intrinsic motivation and low on avoidance, ambivalent readers if they were high on both intrinsic motivation and avoidance, apathetic readers if they were low on both intrinsic motivation and avoidance, or averse readers if they were low on intrinsic motivation and high on avoidance. These profile groupings were then used in mediation testing as the outcome variable predicted by reading ability and flow.

Teacher and Collective Efficacy

The teacher completed four efficacy measures, one on individual efficacy to teach in general, one on individual efficacy to teach reading, one on multicultural efficacy to teach to diverse populations, and one on the collective efficacy of the school as a unit (Appendix E). The first measure of self-efficacy was the short form of the Teacher's Sense of Efficacy Scale (TSES), which asked 12 questions pertaining to a teacher's sense of self-efficacy in terms of facilitating student learning (Tschannen-Moran & Hoy, 2001). These items were organized within three factors: efficacy for instructional strategies, classroom management, and student engagement, each with four questions. The short form was selected for this study based on its high psychometric properties ($\alpha_{\text{instruction}} = .86$, $\alpha_{\text{management}} = .86$, $\alpha_{\text{engagement}} = .81$, $\alpha_{\text{global}} = .90$) and reduced time required for

completion. Reliability could not be assessed in this study based on a single teacher participant. When developed and tested, the TSES demonstrated good construct validity, correlating positively with other measures of teacher efficacy. Responses were provided on a scale ranging from 1 (*not at all*) to 9 (*a great deal*). Subscale and global scores were obtained by averaging across values within each factor and averaging across all values, respectively.

The second measure of self-efficacy was the Teacher's Sense of Efficacy for Literacy Instruction (TSELI) developed to be a domain-specific version of the original TSES (Tschannen-Moran & Johnson, 2011). The scale consisted of 22 questions with responses ranging from 1 (*not at all*) to 9 (*a great deal*). These items converged onto one global factor that explained 55% of the variance in teachers' responses in the original sample (Cronbach's $\alpha = .96$). Confirmatory factor analysis supported the validity of this model. Scores on this measure are moderately correlated with those on the TSES and are obtained by averaging across all items.

A third measure of teacher efficacy assessed multicultural efficacy, or how capable a teacher feels to teach diverse student populations (Guyton & Wesche, 2005). The Multicultural Efficacy Scale (MES) consisted of 35 questions divided into three factors. Experience and attitude were each measured via 7 items and self-efficacy was measured via 20. An additional question was asked to understand teachers' views on the purpose of multicultural teaching. During initial testing, the MES demonstrated good reliability for the experience ($\alpha = .78$) and attitude factors ($\alpha = .72$) along with excellent reliability for the self-efficacy factor ($\alpha = .93$). Each scale had responses ranging from 1

to 4, though response options differed for each factor (see Appendix E) and scores were calculated by summing the items within each factor. The authors of the MES provided cutoffs to identify low (0-54), average (55-66), and high (67-80) efficacy scores.

Finally, the teacher was asked to complete the short form of the Collective Efficacy Scale measuring perceived collective efficacy of her school (Goddard, 2002; Goddard, Hoy, & Hoy, 2000). This scale had 12 questions targeting two aspects of collective efficacy, group competence and task analysis, to determine how well a teacher's school can foster learning as a whole. Answers were provided on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*) and scores were obtained by averaging across all items after reverse coding the negatively worded items. Ultimately, the best fitting model contained one global collective efficacy factor that explained 64.1% of the variance in the items. The measure is reliable (Cronbach's $\alpha = .94$) and demonstrated good criterion validity when compared to other measures.

Flow

Flow was assessed using two survey measures students completed following three distinct activities in their language arts classrooms. First, students completed the Flow Short Scale (Engeser & Rheinberg, 2008; Rheinberg et al., 2003). Second, students completed an experience sampling form consisting of both quantitative and qualitative items.

Flow Short Scale. The Flow Short Scale is a 16-item measure to assess flow experiences (Engeser & Rheinberg, 2008; Rheinberg et al., 2003). The first 10 items tap into the components of flow, followed by 3 items evaluating perceived importance of the

activity, and 3 items about the skill/challenge balance. All but the last three items had response options from 1 (*not at all*) to 7 (*very much*). Skill/challenge balance items were recorded using a 9-point scale, but each item had different poles (see Appendix F). One question asked about skill, one about task demand, and one about balance. Scores were obtained by averaging across items within each factor. Of the first 13 items, two factors were identified: flow components ($\alpha = .92$) and perceived importance ($\alpha = .76$). In the present sample across three activities, flow reliabilities ranged from .59 to .75 and importance reliabilities from .58 to .64. For analysis, only the flow and balance items were used. This measure is valid and has been used in numerous studies in lieu of the longer, more costly FSS-2. From this measure, we were able to identify the degree to which students may have experienced flow based on reports of skill, difficulty, and balance. Therefore, this measure provided important information while also being convenient for administering to students under classroom time constraints.

Experience sampling form. The experience sampling method has been identified as a valid and reliable way to evaluate an individual's subjective experience at a particular moment (Csikszentmihalyi & Larson, 1987; Csikszentmihalyi, Larson, & Prescott, 1977). This type of data is typically collected via an experience sampling form that participants complete when they are beeped via technology (e.g., watch, cell phone) at random intervals. On the ESF, there were open-ended questions for participants to describe what they were doing, what they were thinking about, and who they were with immediately prior to completing the form. There were also scaled items to gauge emotions and perceptions in that moment.

In this study, students filled out an ESF following each of the three activities specified by the researcher (see Appendix G). These forms were collected by the classroom teacher on each occasion and returned to the researcher once all three were complete. Students were prompted to respond to each item while thinking about the reading activity they did before the survey was administered. The version of the ESF in this study was developed based on the one created by Csikszentmihalyi and Larson (1987) with modifications where appropriate.

Some items were removed because they were unnecessary (e.g., “Where were you?”) and the semantic differential emotion scale was altered to be a unidirectional scale for ease of interpretation. Other items were altered to apply more directly to the current context. The item “Who were you with?,” for example, was changed to read, “Who were you doing the main activity with?” and included response options typical to a classroom (e.g., small group, partner). In addition, one item was added to target the academic nature of the activity (i.e., “Will your work on this particular activity be graded?”). This may directly relate to a student’s motivation during that activity and how much effort was exerted. A final item was added from the ESF used in Ochoa-Angrino’s (2012) study regarding students’ ability to choose during the activity. This item provides insight into overall control, a critical aspect of flow.

Open-ended questions were analyzed using inductive coding and domain analysis (Hatch, 2002; Spradley, 1979) whereas the scaled items were evaluated using descriptive statistics. Although an ESF is not intended to tap into a particular construct, it does provide insight regarding students’ experiences of flow in the classroom. The individual

items on the form pertained to different characteristics of flow that could be examined further if a student was found to have experienced flow based on his or her Flow Short Scale score. Furthermore, the ESF provided descriptive information in students' own words that could not be obtained elsewhere during this phase of data collection.

Classroom Activities

For this study, participants completed the Flow Short Scale and an ESF following each of three typical classroom activities involving reading. These activities included individual work, group work, and an assessment. These three activities were selected because they have been identified as the most common classroom activities in which students participate (Shernoff et al., 2003) that may involve reading.

In order to compare students' flow experiences with a particular activity, the teacher and students provided descriptions of that day's activity. The teacher was asked to identify the overall type of activity based on the categories outlined and briefly explain what students were asked to do. Students were asked about the activity within the ESF. This served as a way to verify whether students were reporting flow experiences based on their engagement in the activity as intended by the teacher. See Table 3 for teacher and student descriptions of the activities.

Table 3
Classroom Reading Activity Descriptions

Source	Activity Type	Graded	Description
Teacher	Independent	Yes	Students were given Genesis 2 and 3. This was following instruction on Milton's background and reliance on Genesis. Based on what they read, they completed questions based on Genesis 2 and 3 on comprehension, summary, analysis, and inference.
Student	Independent	Yes	Genesis comprehension task; reading Genesis; answering questions about Genesis
Teacher	Group	No	Students worked in groups of three to complete an analysis of Canto 4 of Tennyson's poem "In Memoriam." Students analyzed phrases with dictionaries and the Bible as resources with some support provided by the teacher as needed.
Student	Group	No	Analyzing a poem/canto; TPCASTT analysis
Teacher	Assessment	Yes	Students worked individually to analyze and complete the TPCASTT process for Canto 5 of "In Memoriam." The same resources were provided as above.
Student	Assessment	Yes	TPCASTT worksheet; analyzing a poem; annotating a poem

Note. TPCASTT is a strategy for poem analysis that stands for title, paraphrase, connotation, attitude, shift, title, and theme.

Interviews

Following collection and analysis of all data described above, a subsample of students was selected for semi-structured interviews. Students were first grouped by reading motivation profile. Those who were averse readers were ranked as having low motivation to read and avid ranked high. Students who were apathetic or ambivalent were considered as falling in the middle. Within each of these three subgroups, students were

randomly selected for interviews. A total of 13 students were interviewed—four avid readers, three ambivalent readers, one apathetic reader, and five averse readers. Of these students, six had reading difficulties as defined earlier. Although it is unlikely that every student interviewed had a flow experience during this study, it is still important to understand what motivates and engages these students to consider how classroom activities may better suit their needs.

A researcher individually interviewed students via videochat on Google Hangouts, each lasting no longer than 15 minutes. Interview questions were developed based on findings from the initial phase of data analysis (see Appendix H). These interviews consisted of open-ended questions aimed at three topics geared toward better understanding these students' flow experiences during school and leisure activities. First, students were asked questions about their reading behaviors and abilities (e.g., "How do you think your reading skills have changed this year, if at all?"). Second, students were asked to explain different things that motivate and interest them (e.g., "In general, what are some things you have to do even though you're not motivated to do them?"). Third, students were asked specifically about flow (e.g., "Do you ever get so focused on something that you lose track of time?"), including how these experiences make them feel and outcomes of those experiences. All interviews were audio recorded and transcribed for accuracy and scripts were used during coding. Please refer to Appendix I for a review of which data sources were used to answer each research question.

Procedures

All participants were asked to provide assent or consent as necessary prior to beginning the study. After receiving a letter of support from the principal to conduct research, the teacher was approached for participation. She read, signed, and returned the adult consent form to the researcher. At that time, an information letter and permission form were sent home to parents requesting permission for their child's participation in the study. If parents agreed, they signed the form and placed it in a blank sealed envelope, which students returned to the teacher and subsequently, the researcher. Finally, students were approached by the researcher for their participation. Students who agreed to participate read and signed the assent form and returned it to the researcher. Once all forms from all parties were collected, data collection began.

Data were collected in three waves. During the first wave, the researcher administered preliminary tests and surveys over the span of 2 days. For students, these consisted of the GMRT-comprehension given on the first day and the SFPQ, RSE, and RMQ given on the second day. For the teacher, the TSES, TSELI, Multicultural Efficacy Scale, and Collective Efficacy Scale were all collected on the first day. The teacher and students also completed a form with demographic information at that time. During the second wave, the teacher was in charge of data collection. On each of three occasions following an individual activity, group activity, or assessment, students completed both the Flow Short Scale and ESF surveys. The teacher also recorded activity descriptions during these times. Once surveys were collected by the teacher and activity reports written for all three time points, the teacher returned the surveys to the researcher. After

receiving all teacher-collected data, analysis on the quantitative data began. When analysis and interpretation were complete, the third wave of data collection occurred in which the researcher conducted face-to-face interviews via videochat with the students selected in the process described earlier. These interview data were then coded and interpreted.

Analysis

Quantitative

Four types of quantitative analysis were used to answer the research questions. First, descriptive statistics were calculated for each of the demographic variables and survey measures to get an overall picture of what was occurring in this sample. Second, inferential statistics were used to examine potential differences in flow proneness based on reading ability as well as students' alignment scores between self-efficacy and reading ability. Third, hierarchical linear modeling (HLM) was used to evaluate how well different variables predicted flow while accounting for the nested nature of the data (Raudenbush & Bryk, 2002). Fourth, a simple mediation analysis (Hayes, 2017) was conducted to identify whether a relationship between reading ability and reading motivation profile was mediated by average flow experiences during reading activities in language arts. All inferential statistics were conducted with an alpha level of .05. Reports of effect size included η^2 for ANOVAs and pseudo- R^2 values for HLM analyses (Raudenbush & Bryk, 2002).

Descriptives. Descriptive statistics, including means and standard deviations, were obtained for all Phase I data using SPSS. Descriptives not only provide a general

idea of what is happening with the data, but also highlight whether there are unanticipated outliers or group differences. For Phase II data, these analyses were used to reveal students' perceptions of each classroom activity as indicated on the ESF surveys. The ESF does not allow for items to be collapsed into subscales, so individual items of interest, including importance items and activity descriptors (e.g., whether it was graded), were examined using descriptive statistics.

These statistics were also used to describe the sample. For instance, it was anticipated that not all students in this sample were formally diagnosed with a reading disability even if they had one. While some students may have signs of a reading disability based on neurological or cognitive differences, schools may not identify those individuals as having a specific learning disability requiring special education services (Jennings et al., 2014b). In addition, a diagnosis of SLD can cover multiple types of learning disabilities, though research has demonstrated that it is distinguishable from other high incidence disability categories based on differences in reading ability (Sabornie, Evans, & Cullinan, 2017). I therefore used scores on the GMRT to identify any students who fell below the 25th percentile cutoff and were considered to have reading difficulties (Denton et al., 2015). These students were then grouped with those diagnosed with SLD and those receiving RTI for the purposes of inferential analyses. For each of the inferential analyses described below, descriptive statistics were used as a supplement to further explain those results.

Inferential statistics. Aside from the hierarchical linear modeling that was used to answer the primary research questions, some initial data analysis was needed. First, the

SFPQ was analyzed to determine that there were no differences between groups on their ability to have a flow experience at the beginning of the study. To test this, a two-way MANOVA was run with gender and reading ability group (RD or not) on SFPQ scores (i.e., school, leisure, and total). These scores were not expected to significantly differ between groups. Second, a two-way ANOVA was run on the alignment scores to determine whether gender or reading ability influenced the accuracy with which students perceived their reading abilities. Finally, a multivariate general linear model was used to assess differences in responses to flow-related items on the ESF based on activity type.

To answer whether students have accurate perceptions of their reading abilities, their self-efficacy scores from the RSE (SE) were compared to their reading comprehensions scores (C) as measured by the GMRT. In order for this comparison to be made, both instruments had to be on the same scale so students could be assigned a single alignment score (A) based on their perceived and actual reading abilities. Thus, alignment was calculated using the following equation:

$$Alignment = \left(\frac{C - \bar{C}}{S_C} \right) - \left(\frac{SE - \overline{SE}}{S_{SE}} \right)$$

Alignment scores were reported as z-scores where each integer change corresponds to a change in standard deviation. The alignment scores were included in a two-way ANOVA as the dependent variable to determine whether this alignment is greater for certain student groups than others based on gender or disability. Descriptive statistics were also examined to identify if and where differences existed among this sample.

Hierarchical linear modeling. Two of the research questions presented in this study were answered using hierarchical linear modeling in the HLM7 software (Raudenbush, Bryk, & Congdon, 2013). This is the optimal type of analysis for this research because the model can be built upon such that a single model can ultimately account for all variables of interest in this study. Moreover, because some data are collected on multiple occasions (i.e., flow measures, activity reports) whereas other data are collected only on one occasion (e.g., self-efficacy, reading motivation), both within subject and between subject effects need to be analyzed. The HLM structure accounts for this by nesting repeated measures (Level 1) within individuals (Level 2). It should be noted, however, that due to the small sample size, only one Level 2 variable (i.e., reading ability) could originally be tested directly in the proposed model.

Two other variables (i.e., alignment and intrinsic motivation to read) were entered in at level two as exploratory variables using *t*-to-enter in the HLM software (Raudenbush & Bryk, 2002). This test provided *t*-coefficients to determine whether these variables could have a significant effect on flow if they were to be independently entered into the model. These test statistics, however, do tend to underestimate the effects of a predictor when it is entered into the full model, so even if a *t*-value neared significance (i.e., $p < .10$), it was considered for inclusion in the HLM. Based on the significance of the primary and exploratory predictors, the model was adjusted as necessary for optimization.

Presented below is the overall model used during analysis. Level 1 includes all variables that were measured multiple times within individuals. Level 2 includes all

between-student variables that were measured on one occasion. This model ultimately provided answers to questions regarding whether certain constructs predict flow.

Alignment and motivation were not included in the original model, though they were entered as exploratory Level 2 variables.

$$\text{Level 2: } \pi_{0ij} = \beta_{00} + \beta_{01}(RA_i) + r_{0i}$$

$$\pi_{1ij} = \beta_{10} + \beta_{11}(RA_i)$$

$$\pi_{2ij} = \beta_{20}$$

$$\text{Level 1: } Flow_{ti} = \pi_{0i} + \pi_{1i}(B_{ti}) + \pi_{2i}(A_{ti}) + e_{ti}$$

For all analyses, reading ability was included as a Level 2 covariate to account for any differences that may exist between these groups. Although race was a variable of interest, there was insufficient diversity in the student sample to compare across this variable. Table 4 provides brief descriptions of the symbols used in this model for ease of interpretation.

Table 4

Explanation of HLM Variables

Notation	Interpretation
$Flow_{ti}$	Flow Short Scale score at time t for student i
π_{0i}	Average flow score during the first activity for student i
$\pi_{1i}(B_{ti})$	Expected change in flow per unit increase in skill/challenge balance (B) at time t for student i
$\pi_{2i}(A_{ti})$	Symbolic of the average effect of activity type (A) on flow at time t for student i
$\beta_{\#\#}$	All betas refer to average regression coefficients between students
RA_i	Reading ability group for student i
e_{ti}, r_{0i}	Level 1 and 2 error terms, respectively

The initial model tested variables at Level 1 (i.e., perceived skill/challenge balance, activity type, and flow), after which reading ability (*RA*) was entered at Level 2. This model first assessed whether activity type and balance item scores from the Flow Short Scale were related to students' reports of a flow experience overall as suggested by the 10-item flow factor in this measure. Given the nominal nature of activity type data, each activity was first dummy coded prior to being entered into the model. The independent activity was coded as 0, representing the baseline activity. Therefore, the parameter π_{2i} represents the average change in flow based on activity type as a result of separately comparing the independent activity to each the group and assessment activities.

After this model was assessed, adjustments were made as necessary (e.g., dropping a non-significant covariate) for simplification and optimization of prediction. Based on prior research, it was suggested that reading ability may need to be controlled for when predicting flow. Thus, this full model answered whether the relationships between skill/challenge balance, activity type, and flow experiences depend on students' reading ability. Adding intrinsic motivation to read and alignment between perceived and actual reading ability into the exploratory analyses allowed for conclusions to be drawn about whether these factors also influenced the aforementioned relationships.

Mediation. A simple mediation analysis was used to examine the potential mediation of the relationship between reading ability and reading motivation profile by students' average flow experience (Hayes, 2017). Average flow was calculated based on students' scores on the Flow Short Scale across the three class activities. Including

average flow across activities in the mediation model accounted for differences in overall tendencies to experience flow during in-class reading activities. It also transformed flow from a repeated measure to an individual value for each participant, making it a between subjects variable.

This model allowed for mediation to be tested among variables at the same level of analysis (see Figure 5). This mediation was conducted using the PROCESS application in SPSS with bootstrapping (Hayes & Scharkow, 2013). If the indirect relationship between reading ability and motivation profile through flow is significant, a mediation effect will be supported. If mediation is supported in this data, interviews will aid in understanding how this relationship is occurring for these students.

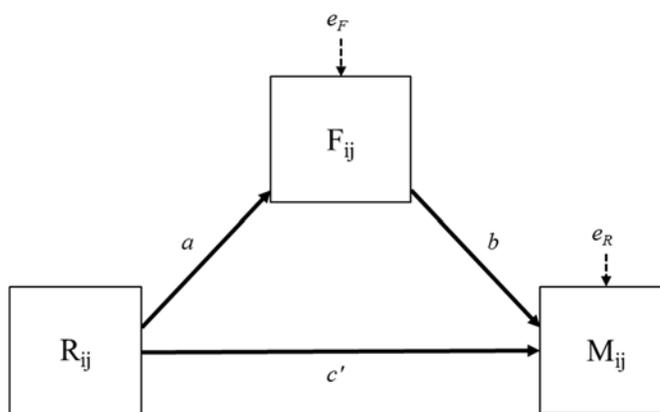


Figure 5. Simple Mediation Analysis. R = Reading Ability Group, F = Average Flow, M = Reading Motivation Profile. ab is the Indirect Effect of M on R through F. c' is Direct Effect of R on M Controlling for F. e_F and e_R Represent the Error Terms Associated with Estimating F and M.

It is reasonable to assume a mediation effect may exist between these variables because researchers have established a relationship between students' ability to read and lower motivation to read (Klauda & Guthrie, 2015; Lee & Zentall, 2012), though not

specifically using these profiles. Furthermore, the relationship between flow and intrinsic motivation has been reiterated throughout the flow literature (e.g., Csikszentmihalyi, 1997). Although it is stated that anyone can experience flow, students who struggle with reading may perceive certain activities to be more difficult than their higher performing peers. Thus, they may enter a flow state less often, though perhaps not in every case. In some studies, students with reading difficulties have reported they do like to occasionally read books (Melekoglu & Wilkerson, 2013), so it is possible they may demonstrate some intrinsic motivation to read already, though it is unlikely they would be categorized as avid readers. Even those who are intrinsically motivated to read may demonstrate tendencies toward high avoidance because they find reading to be difficult.

Additionally, as Nakamura and Csikszentmihalyi (2005) suggest, it is possible that students can become intrinsically motivated toward any activity through the experience of flow. Therefore, students who experience flow more frequently during reading activities will likely be more intrinsically motivated to read and this may counteract any initial effect of reading ability. Considering the established relationship between motivation to read and reading achievement (e.g., Ho & Guthrie, 2013), if this mediation effect is supported, recommendations can be made to inform educators how to effectively and efficiently address low reading performance of older adolescent students by fostering flow experiences.

Qualitative

All qualitative data obtained, including open-ended responses from students' ESFs and interviews, were subject to inductive coding with domain analysis (Hatch,

2002; Spradley, 1979). To do this, data were initially open coded using in vivo codes. Statements that were related were grouped into domains, and domains analyzed to uncover themes. These themes captured the overall ways in which students described their experiences, including motivation, interest, and engagement during school and leisure time. Throughout this process, particularly interesting or representative responses were marked and used to support the conclusions drawn by these data. Interview data were coded separately by three researchers as a form of triangulation for the study. Identified themes were discussed and discrepancies were resolved until agreement reached 100%.

Summary

In this chapter, sampling, data collection, and analysis procedures were described. All measures were explained in detail, including scoring procedures and psychometric properties. Participants included 22 high school students in a Title I public charter school in the southeast and their language arts teacher. Students were asked to complete four surveys at the beginning of the study, including the Gates-MacGinitie Reading Test (MacGinitie et al., 2000), the reading self-efficacy instrument (Shell et al., 1989), the Swedish Flow Proneness Questionnaire (Ullen et al., 2012), and the Reading Motivation Questionnaire (Guthrie et al., 2009), with adaptations as required. Teachers were asked to complete four surveys at the beginning of the study, including the Teacher's Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001), the Teacher's Sense of Efficacy for Literacy Instruction (Tschannen-Moran & Johnson, 2011), the Multicultural Efficacy

Scale (Guyton & Wesche, 2005), and the short form of the Collective Efficacy Scale (Goodard, 2002). All participants were required to fill out a demographic form as well.

Once these initial surveys were completed, students filled out the Flow Short Scale (Engeser & Rheinberg, 2008) on three occasions following a group reading activity, an individual reading activity, and a reading assessment activity. On each of these occasions, the teacher documented the activity type with details about what students were asked to do and whether the activity was graded. Quantitative analyses began after these measures were returned to the researcher, including inferential testing, hierarchical linear modeling, and mediation modeling. Descriptive statistics were examined throughout these analyses.

Interpretation of the quantitative analyses uncovered the findings in need of further explanation through student interviews. At that time, interview questions were developed and students were purposefully selected to participate. Interviews were recorded and transcribed prior to inductive coding, in which themes were identified. Themes were then compared back to the quantitative findings and summarized into an overall description of what was found in our sample. Ultimately, these methods provided insight into whether and how high school students with disabilities experienced flow during three typical in-class language arts assignments in Title I schools.

In the following chapter, findings from these analyses will be presented and each research question will be answered. Statistics from each test will be provided and briefly explained in terms of how they do or do not support the hypotheses. Subsequently, the last chapter will include a discussion going into greater detail explaining each of these

findings further insofar as their implications to instruction. Previous research will be used to supplement these findings as well. In this chapter, limitations of the study will be reviewed and future directions for research and instruction will be suggested based on the conclusions.

CHAPTER IV

RESULTS

Quantitative Analyses

Preliminary analyses included descriptive summary statistics of student and teacher surveys, flow proneness comparisons, and testing alignment scores between groups. On the GMRT, students averaged 22.89 ($SD = 7.98$), which equates to approximately the 41st percentile and a grade equivalent of midway through ninth grade. This indicates that on average students in this sample are performing roughly one and a half years below their actual grade level. Five students scored below the 25th percentile, which suggests that their reading comprehension skills are at least three grade levels behind, even though only one has been formally diagnosed with a learning disability. Two additional students were placed in the RD group based on reading interventions they received at school.

On the Swedish Flow Proneness Questionnaire, students scored an average of 3.56 ($SD = .70$) on the school subscale, 3.61 ($SD = .76$) on the leisure subscale, and 3.59 ($SD = .66$) on the total scale. Further examination revealed that there were no significant differences between flow proneness scores based on gender or reading ability for any of the scales ($ps > .05$). These results indicated that all students were equally likely to have flow experiences across contexts. Thus, further analyses involving flow do not have to take into account differences in this predisposition.

Responses to the reading self-efficacy measure suggested that students generally viewed their fluency abilities ($M = 84.85, SD = 17.57$) to surpass their comprehension abilities ($M = 78.06, SD = 17.38$). To compare these scores to actual reading ability, RSE task and GMRT scores were converted into z -scores and the difference was calculated, computing students' alignment scores. When compared to reading comprehension performance, students' self-efficacy beliefs were relatively accurate overall ($M = .06, SD = 1.43$). These results were skewed, however, by substantial differences in alignment between groups based on reading ability ($F_{1,14} = 11.14, p = .01, \eta^2 = .44$). Approximately 44% of the variation in self-efficacy scores on the task subscale (i.e., comprehension) was due to differences in reading ability. Students with reading difficulties tended to overestimate their abilities by nearly an entire standard deviation ($M = -.97, SD = 1.14$) whereas those without RD tended to underestimate their abilities by half of a standard deviation ($M = .58, SD = 1.30$). This supports the second hypothesis that students with RD show greater deviations in alignment between perceived and actual reading ability.

Computations of alignment were also calculated in terms of GMRT scores rather than z -scores to understand in practical terms what these differences mean using the following equation. On the GMRT, which has 48 items, these discrepancies equated to students with RD overestimating their comprehension skills by roughly 10.35 points and students without RD underestimating by 5.88 points. In other words, students with RD would expect to get an additional 10 questions correct on the comprehension portion of the GMRT whereas those without RD would expect to get six fewer questions correct than they actually did.

Neither were differences based on gender controlling for reading ability significant ($F_{1,14} = 3.48, p = .08, \eta^2 = .20$), nor was there an interaction between gender and reading ability. However, the effect of gender appeared to be nearing significance. It is possible this effect could not be appropriately assessed due to an imbalance in the sample in which only four of the 14 students in this analysis were males, and only one male did not have RD. It is possible that if there were a greater number of males, this test may have achieved significance, especially considering that gender explains 20% of the variability in self-efficacy scores here. Surprisingly, the one male who did not have RD grossly underestimated his abilities by nearly three standard deviations ($M = 2.88$). This extreme score may have also contributed to skewness that affected the gender alignment results.

On the Reading Motivation Questionnaire, students reported an average of 17.14 out of 24 on intrinsic motivation ($SD = 5.64$), 14.32 out of 24 on avoidance ($SD = 3.85$), 10.05 out of 12 on self-efficacy ($SD = 1.29$), and 5.86 out of 12 on perceived difficulty ($SD = 2.42$). To obtain reading motivation profiles, scores on intrinsic motivation and avoidance were subject to a median split. Intrinsic motivation scores that were below 19 were coded as low and above 19 as high; avoidance scores below 15 were coded as low and above 15 as high. These were then compared as described earlier into averse, apathetic, ambivalent, and avid profile ratings. In all, nine students were categorized as averse readers, nine were avid, one was apathetic, and three were ambivalent. Upon further examination, four of the nine averse readers were those with reading difficulties whereas only one of the nine avid readers had RD. Moreover, two of the three ambivalent

readers were those with RD. These results partially supported the hypothesis that students with RD would more likely be averse or ambivalent based on higher avoidance scores, though additional significance testing was conducted within the mediation analysis.

Teacher surveys were analyzed using descriptive statistics to understand her efficacy beliefs about her own abilities as well as her school's abilities as a whole. Her self-efficacy beliefs about instruction ($M = 8.25$) and classroom management ($M = 7.75$) were relatively high, but she viewed her ability to engage students as somewhat lower ($M = 6.75$). Overall, she felt quite confident in her ability to teach in general ($M = 7.58$). She felt equally capable to teach literacy to her students ($M = 7.50$). In terms of multicultural efficacy, she scored nearly the maximum ($\Sigma = 78$) indicating that she feels extremely confident in her abilities to successfully teach students of diverse populations. In contrast, she believes her school is less competent in fostering learning in its students ($M = 3.08$).

Hierarchical Linear Modeling

The first research question was answered using descriptive analysis and hierarchical linear modeling. Prior to running the HLM, I explored student responses to the FSS item regarding skill/challenge balance. Analysis of the means suggested that students perceived each of the three activities to be well-matched to their abilities. Students felt the balance was perfect in the group activity ($M = 5.00$, $SD = .88$) whereas the independent activity was a little too easy ($M = 4.84$, $SD = 1.74$) and the assessment activity was a little too hard ($M = 5.16$, $SD = 1.68$). These deviations from a balance of

“just right” are minimal, though interestingly they are equidistant from the group activity in either direction.

Given the nature of the response scale of this item whereby the ideal balance score fell in the middle, scores above 5 were reverse coded before entry into the HLM. A score of 9, for example, became 1 and 7 became 3. Although this method may have resulted in a loss of some data regarding whether the activity was too hard or too easy, it still captured the essence of balance on a unipolar scale, making directionality of balance effects easier to analyze and interpret. Once this adjustment was made, the new mean balance scores were 3.89, 4.58, and 4.00 out of 5 for the independent, group, and assessment activities, respectively.

Examination of the HLM results including means and standard deviations of flow are presented in Table 5. The first model tested included the covariates of skill/challenge balance and activity type at Level 1, which were used to predict flow scores on the FSS. While balance did significantly predict flow after controlling for activity ($t_{29} = -2.75$, $p = .01$), the reverse was not true. Thus, our hypothesis regarding differences in flow based on activity characteristics was not supported. As a result, activity was dropped from the model. The second HLM included balance at Level 1, which was retained from the first iteration, as well as reading ability scores, which were added at Level 2 as predictors of both balance and flow. Reading ability was not a significant predictor of either variable. Moreover, including reading ability in the model decreased the effect of balance on flow so it was no longer significant ($p = .07$). Therefore, reading ability was dropped from the model and the third model contained only balance as a predictor at

Level 1 ($t_{31} = -3.48, p = .002$). At this stage, the exploratory Level 2 covariates of alignment and intrinsic motivation to read were tested to determine if any could potentially be significant predictors of flow if included in the model.

Table 5
Final Hierarchical Linear Model and Results

<i>Coefficient</i>	<i>t-ratio</i>	<i>p-value</i>
$\beta_{00} = 3.98$	9.18	<.001
$\beta_{01} = .06$	2.47	.02
$\beta_{10} = -.14$	-3.03	.005
χ^2		
$r_{0i} = .33$	72.53	<.001
<i>Descriptives</i>		
	<i>M</i>	<i>SD</i>
Flow (within students)	4.97	.85
Flow (between students)	5.15	.79
Balance	4.16	1.19
Intrinsic Motivation	17.19	5.78

Note. Level 1: $Flow_{ti} = \pi_{0i} + \pi_{1i}(B_{ti}) + e_{ti}$
Level 2: $\pi_{0i} = \beta_{00} + \beta_{01}(M_i) + r_{0i}, \pi_{1i} = \beta_{10}$

Exploratory analyses revealed that only reading motivation may be a significant predictor of flow if included in the model ($t_{19} = 2.40, p = .03$). To test this further, intrinsic motivation to read was added at Level 2 along with balance at Level 1. Here, motivation was a significant predictor of flow controlling for balance between skills and challenge ($\beta = .06, t_{19} = 2.47, p = .02$). Balance remained a significant predictor of flow

as well after accounting for reading motivation ($\beta = -.14$, $t_{35} = -3.03$, $p = .01$). This was therefore the final model.

Results from the final model revealed that there were differences in initial flow scores during the first (i.e., independent) activity between students ($\beta = 3.98$, $t_{16} = 9.18$, $p < .001$). Furthermore, the model indicated that when balance is 0, every unit increase in intrinsic motivation leads to an increase of .06 points in students' flow scores. Surprisingly, when reading motivation is 0, a unit increase in skill/challenge balance leads to a decrease of .14 points in flow, which refutes our hypothesis that increases in balance lead to increases in flow.

There were also significant differences in variability in flow scores across students ($\tau = .58$, $X^2 = 72.53$, $p < .001$). To assess how much of this variability was accounted for by intrinsic motivation for reading and skill/challenge balance, a pseudo- R^2 was computed by taking the difference between the variance in the present model and that in the unconditional model (i.e., no predictors) divided by the variance in the unconditional model as shown below. This value indicates that reading motivation profile and balance together explain 10% of the variance in flow scores between students across time.

$$Pseudo - R^2 = \frac{.30 - .33}{.30} = .10$$

To further understand the impact of reading motivation on flow, descriptive statistics of reading motivation profiles were reviewed in relation to flow. As expected, students who were averse ($M = 4.53$, $SD = .80$) and apathetic readers ($M = 4.70$,

$SD = .00$) had the lowest flow scores. Avid readers had the second highest flow scores ($M = 5.26, SD = .72$) and ambivalent readers had the highest ($M = 5.54, SD = .91$). Although it may be inferred that avid readers would have the highest flow scores, they may have perceived reading activities to be too easy based on their abilities, resulting in somewhat lower flow scores. Generally, ambivalent readers are higher on avoidance than avid readers, but are also high on intrinsic motivation, which in itself leads to greater flow scores based on the HLM results, so these results are supported by the model as well.

Mediation Analysis

To answer the third research question, simple mediation analysis was used in which the relationship between reading ability and reading motivation profile was mediated by average flow scores across three reading activities. Overall, this model was not significant (see Figure 6). Reading ability did not directly predict average flow or reading motivation profile, which refutes the fourth hypothesis. The direct effect of flow on reading motivation profile was nearly significant ($b = .76, t_{18} = 2.02, p = .058$), suggesting that flow experiences during reading may positively influence students' motivation to read. Furthermore, the linear model in which reading ability and flow collectively predict reading motivation profiles was also nearly significant ($r = .52, F_{2,18} = 3.32, p = .059$) and had an R^2 value of .27. This indicates that 27% of the variance in reading motivation profiles can be explained by a combination of flow experiences while reading in class and reading ability, so there may be a predictive relationship present had a larger sample been available.

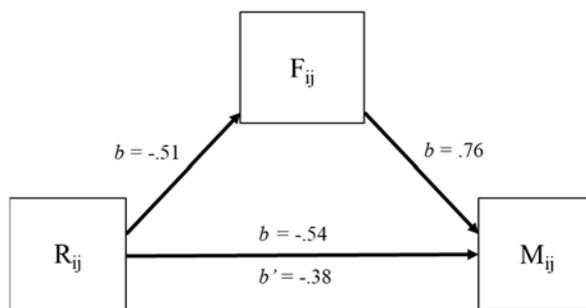


Figure 6. Mediation Analysis Results. b' Indicates Coefficient for the Indirect Pathway, or Mediation.

Experience Sampling Data

Experience sampling forms provided quantitative data on the characteristics of the different activities students completed during this study that were not captured by the Flow Short Scale. Most students expressed having some choice during all activities, though the group activity seemed to offer the most opportunities for student control overall based on all students stating they could choose at least one thing during the activity. The independent activity was said to offer no choice by five students, indicating students had less control there, and the assessment activity offered no choice, according to two students.

To test student ratings of experiences related to flow, I ran a multivariate ANOVA to explore the differences between five constructs (i.e., the first five scaled items regarding concentration, self-consciousness, feeling good, and control) based on activity type. Student ratings of perceived skill and challenge of each activity as well as how important each activity was to student goals were also included as dependent variables. Overall, activity had a significant effect on the dependent variables collectively, explaining 26% of the variance ($F_{16,90} = 2.01, p = .02, \eta^2 = .26$). More specifically,

activity showed significant effects on how well students were concentrating ($F_{2,51} = 3.74$, $p = .03$, $\eta^2 = .13$), student perceptions of their skill during the activities ($F_{2,51} = 4.87$, $p = .01$, $\eta^2 = .16$), and student perceptions of the challenge posed by the activities ($F_{2,51} = 3.32$, $p = .04$, $\eta^2 = .12$). Importance to student goals was nearly significant ($p = .052$). Table 6 presents descriptives for each of these variables.

Table 6

Descriptives of Variables by Activity on Experience Sampling Survey

<i>Construct</i>	<i>Activity</i>	<i>M</i>	<i>SD</i>
Concentration	Independent	8.06	1.35
	Group	6.17	2.07
	Assessment	6.61	2.81
Perceived skill	Independent	8.17	1.04
	Group	6.44	1.50
	Assessment	6.06	3.26
Perceived difficulty	Independent	3.00	2.50
	Group	4.61	2.12
	Assessment	4.83	2.36
Importance to goals	Independent	6.72	2.24
	Group	5.28	2.85
	Assessment	4.56	2.79

Post-hoc analyses were conducted using Tukey HSD tests to further examine these differences. For concentration, students reported concentrating better during the independent activity than during the group activity ($M_{diff} = 1.89$, $p = .03$). There were no

other significant differences between activities regarding ability to concentrate. Interestingly, there were no significant differences detected at the .05 level between perceived challenge based on activity despite the significant effect overall. The difference between the independent and assessment activities neared significance, though ($M_{\text{diff}} = -1.83, p = .056$), suggesting this was likely where the effects were occurring whereby the assessment was viewed as being more challenging than the independent activity. Similarly, perceived skill showed the same pattern in which students felt their skills were higher in the independent activity than in the assessment activity ($M_{\text{diff}} = 2.11, p = .01$).

Although importance to goals was not technically significant in the original test, the post-hoc analyses did indicate there were significant differences between activities. Students indicated that the independent activity was more important to their goals than was the assessment activity ($M_{\text{diff}} = 2.17, p = .045$) and the group activity fell in between. Interestingly, this was not the same pattern identified on the Flow Short Scale, in which importance was comprised of three items. On the FSS, students reported the group activity as the least important ($M = 3.84, SD = 1.75$), followed by the assessment ($M = 4.02, SD = 1.53$), and the independent activity ($M = 4.28, SD = 1.56$). It is probable that the FSS better captures importance in this case because it uses more information to assess overall importance, and these results suggest that students generally viewed ungraded activities as less important than graded activities, though these differences were not significant.

Qualitative Analysis

Qualitative analysis of interview data consisted of domain analysis in which themes were uncovered based on semantic relationships among the data. In all, one overarching theme was identified that was then broken into five categories: (a) motivation, (b) flow, (c) interest and engagement, (d) helpful teacher behaviors, and (e) reading. Within each of the categories, subthemes were identified that elaborate on some of the quantitative results, particularly those related to reading motivation and students' experiences of flow.

Across the 13 students interviewed, the overarching theme strewn throughout related to students' future goals, most notably going to college and being successful adults. Nearly all students described these as the driving force behind activities they chose to pursue and elective classes in which they enrolled this year. In addition, when confronted with tasks students did not want to do, particularly in school, they would remind themselves of their goals as motivation to get through the activities. A theme that was perhaps more specific to the nature of this case (i.e., low income families) was that many students described situations involving friends and relatives that they sought to avoid by focusing on their future. Many students interviewed acknowledged some aspects of their home life that made them want to do well in school so they could succeed after graduation. As one student said, "I focus on what my future's gonna be like 'cause I don't want to spend the rest of my life either in a prison cell or in the ground." Another stated that if he didn't do well in school, his only option would be "military . . . or just not do anything." A third student described her motivation as stemming from her parents'

experiences in which her father repeated the 12th grade twice and her mother did not go to college until she was finished having children.

Motivation

For many students, their motivation to succeed was self-driven, even when others were not supportive. One student said that although people have told her that college is not essential to be successful in life, she needed a Plan B. “I need to think ahead. In school, outside of school, I’m always working on what can I do for college? What extracurricular activity? What new project? What could wow colleges to want me?” Others, while less intrinsically motivated to achieve these same goals, do work toward them with a similar mindset. In these instances, students referenced their parents as being the ones who stressed the importance of going to college. It appears, though, that the constant push from parents to work hard and do great things had become internalized by these students to some degree. Some students also mentioned setting good examples for younger children as motivating them to do well in school. It was important to these students to show children in their community that there are other positive options available to them. “Seeing the little kids do bad things like other people do. Do good things like you should do in school. Make them follow you. Be a leader.” It was apparent throughout the interviews that, regardless of the source, students’ behavior in and out of school was motivated by future goals.

A good example of this was present in student responses when asked their approach to completing school tasks they are not motivated to do. Overall, students have a “get it done” approach in which they push through the activity. As mentioned, many

refer back to their goals as helping them finish. In one student's words, "It's something that I have to do 'cause I do want to succeed in life." As another student said, "If I do this, I'll get a good grade and I'll get into a good college." Thus, it is apparent that this notion of being a successful adult is inherently woven throughout their academic careers. Other students described their motivation to get these activities done so they could move on to something more enjoyable and they establish incentives for completing these tasks. A few students did indicate that they may avoid the activity or procrastinate. One high-performing student admitted that while she would do the assignment, she would likely not do it to the best of her abilities.

In all, interview data revealed that these students were motivated to perform well in school. As a result, they worked hard even when they were tasked with an activity that did not particularly interest or engage them. This contributes to understanding the finding that there were no differences in flow between activities because students generally devoted effort and attention to all classroom assignments regardless of the characteristics of the task. On the experience sampling forms, though, there were differences in concentration levels across activities in which they concentrated more on the independent and assessment activities. Presumably, this is because these activities were graded whereas the group activity was not and grades affect graduation and college acceptance, which students highly value.

Flow

In terms of flow, students were asked about activities in which they lost track of time and were deeply engaged for long periods of time. These questions were used in lieu

of fully describing flow to each student. For the purpose of analysis, descriptions of their experiences during these activities were considered to be those in which flow occurred. Every student was able to identify at least one type of activity in which they lost track of time because they were so deeply immersed. During leisure time, students described entertainment (e.g., drawing) and sports as flow-inducing. At school, students found themselves losing track of time most often during individual activities (e.g., tests, review packets) and group activities (e.g., debates, class discussions). Although these activities differed between students, there were no apparent distinctions between flow experiences of students based on any demographic characteristics (e.g., gender, reading ability). Many students described these activities as requiring deep cognition to be done well, and “thinking” was highlighted by many students as facilitating this flow experience. In addition, it was critical that students understood what to do during that activity. Some examples of student statements reflecting this subtheme are:

- “Thinking is always going to make you focus more, so when it’s a one-task thing, my mind has a one-task train.”
- “I understand it and I just keep on going,”
- “I’m finding everything I need to, I’m doing everything I need to.”
- “My brain is working at its best. It’s using the information that I was given and using it to help figure out a problem or to answer a question.”

Students also mentioned that these activities presented new challenges involving a skill they already had or were developing (e.g., “It’s a challenge, but it’s fun”). They acknowledged that deeply engaging in an activity in this way could help them learn new

skills, hone existing skills, and gain new information (e.g., “Gotta learn it to get better”). One student described a sense of skill challenge balance by saying, “When it’s a little challenging, but not too hard, not too easy, then I can give it my best ability and I try at least.” These experiences were also said to function as a skills assessment. As one student put it, “I’m like let’s do this more. Just to get better insight, like who I am, how good I am. It shows me where my skills are.”

When asked if having this sense of time distortion made them want to do that activity again, 92% of the students interviewed said yes. They mostly wanted to engage in these activities again because they enjoyed the feeling of flow, specifically because that feeling signaled that they were not bored. A student explained this rationale by saying, “If you’re bored, then you’re gonna look at the clock a lot. If you’re not, then you typically won’t, so I enjoy not being bored obviously, so I would love to have that feeling all the time.” Students were clear, though, that the next activity should not be the exact same. Rather they preferred to do a similar activity that presented new challenges (e.g., leveling up in a video game).

Interest and Engagement

Across contexts, students described these flow activities as interesting to them. During the interview, students were able to easily name multiple things that interested them, but it was often a challenge to get them to think of things that do not interest them in some way. From 13 students, there were 46 things mentioned that they found interesting and only 16 that they did not. Multiple students said they could not think of anything uninteresting (e.g., “In a way, everything interests me”). The most frequently

mentioned interests in these interviews related to social engagement (e.g., time with friends, class discussions) and leisure activities (e.g., sports, arts). Some interests were again linked to future goals, like volunteering. Students indicated that the things in which they were interested were those that kept them engaged and to which they could relate. When asked about how they were able to incorporate their interests at school, students expressed an appreciation for being able to choose some of their courses this past year. Once in the courses, however, there were few, if any, customization options mentioned within the curricula to accommodate their interests.

Helpful Teacher Behaviors

In addition to including their interests at school, students identified specific teacher and school characteristics that affected their learning. Though students were able to recognize their growth this past year thanks to their language arts teacher and a few others, some expressed disappointment in their school as a whole. “While the school may have good intentions, they don’t always have the best follow through,” one student claimed. Another felt that perhaps her and her peers’ needs were disconnected from those of the school overall because of age: “Our school is a K-10 school. I feel like they sometimes treat us like the younger kids, so the things that motivate the younger kids they try on us and it’s like uh, that’s not really gonna work.” Nevertheless, students did report many ways in which teachers were helpful, especially their language arts teacher.

Students described their teachers’ roles in facilitating learning as two-fold: (a) keeping them engaged, and (b) supporting skill acquisition and improvement. One theme that emerged here was that teachers were better at keeping their students engaged when

they were passionate about teaching and student success. A student described her set of teachers by stating,

They are all there for the same reason, to help us, and I know they're there to help us and I know they actually care about my education and it's not just a whole 'nother bunch of kids to push through high school.

This suggests that not only do teachers have to be invested themselves, but that commitment has to be conveyed to the students. As one student suggested, “add more flair to it or tension possibly behind the voice, and just body language and the way you speak and the tone of your voice can really change a lot and the atmosphere of a class.” Another student referenced future goals again during the interview, explaining that she stays engaged because of “the excitement of knowing I could be there, that could be me.” Students also felt that group activities were more engaging overall, likely due to the social component many of them enjoy. They further reported being more engaged when the teacher was able to link what they were learning with other, more interesting content to which students could relate. Drawing connections helped them stay more interested in the discussion and better understand more complex topics because they could use their background knowledge as support. Both being interested and understanding were facets of students' flow experiences as described in their own words, so this could be a critical piece of instruction for these students.

In terms of skill development, students spoke specifically about their language arts teacher who participated in this study. The primary theme here was that the teacher provided access to content. The first subtheme was that students appreciated her use of

scaffolded instruction. The students described that she guided learning by doing activities with the students until they could do them independently (i.e., scaffolding). This was evident even in the classroom activities measured in this study in which the group poem analysis was supported by the teacher, followed by the assessment activity in which students analyzed a poem on their own.

She also introduced new tools and strategies that students could eventually use independently. These did not come without resistance, though. Multiple students described a particular vocabulary worksheet that no one liked, but they ultimately found useful. “My literature teacher has given us vocab sheets that I despise, but they do help out,” one student said. Another student described this activity by saying,

All of us complained about [the vocabulary worksheets], but it helped us. I’ve learned at least 20 new advanced vocabulary words in one semester and it’s one of the best things she could’ve ever done because now when I have conversations with different scholars and diplomats, I can actually understand them a lot better and in books I can notice it.

This idea ties into the second trend, which was that their teacher pushed them to grow by challenging them, helping them understand why certain skills and assignments were important, and giving them more to read than in past years. In comparison to reading one book the previous year at a different school, one student said, “Here we read 3 or 4 different books and it made you get better because each book was harder, which I like.” Another student reiterated this idea of increasing challenge. “[The teacher would] help me get more books that’s up to my standards and help me progress and read more books that’s, you know, not my standards, that’s higher.” Due to the teacher’s methods,

all but one student was able to name ways in which their reading abilities have improved over the past year. Most students listed comprehension and reading more overall as the primary changes. Interestingly, when asked how his reading skills have changed, only the student with a diagnosed reading disability described changes that were negative. “When I first started reading, I was able to understand it a little bit more, but now every time I read, it’s like it’s a bunch of things being thrown at me.” It therefore appears that this student is struggling to keep up because the class assignments are not aligning with his skill level, which could prevent flow experiences from occurring. Instead, it is likely this student experiences anxiety more often and retreats from class activities, which may be why he reports regularly going to sleep during his language arts class.

Reading

In general, students had very strong feelings about reading one way or another and these feelings were directly linked to students’ motivation to read. Of those interviewed, eight indicated they do read during leisure time, which corresponded to the reading motivation profile results in which five of the 13 students interviewed were averse readers. This division was apparent when they described their feelings toward reading in which some students had a strong dislike for it whereas others felt they were “addicted” to it; one student even used the word “avid” to describe her reading habits. It appears as though what students find interesting is driving this division. Students who do not read for fun explained it was because they do not find it interesting or it is boring, whereas students who do read for fun said they read based on what they find interesting.

However, even those who said reading in general was boring and uninteresting could still identify at least one book they enjoyed reading and describe why it was enjoyable.

Across all students, some aspects of reading they liked were learning new things and escaping from reality, “as cliché as that is,” one student noted. They didn’t like when reading was boring, uninteresting, or not relatable, which was also the case when describing classroom instruction. There was a general consensus that when books are too long or there is too much to read, they tend to like reading less, even for those students who are avid readers. In terms of reading skills, comprehension and vocabulary were the most often stated strengths, though vocabulary was also said to be a weakness for many, along with pronunciation and reading aloud. Although these discussions on reading are less directly linked to flow, they provide insight into the features of reading and reading activities that may keep students motivated and engaged, leading to additional opportunities for flow experiences during language arts class.

CHAPTER V

DISCUSSION

Given the current demands on teachers within standards-based education and large achievement gaps in reading between student groups based on race, socioeconomic status, and ability, this study sought to expand upon previous research to understand flow experiences in school through the lens of culturally relevant pedagogy. Specifically, I explored ways in which student engagement and motivation could be enhanced via instruction as it naturally occurred in the classroom. Participants included students from low income, minority backgrounds and those with disabilities, groups that are traditionally underrepresented in education research. This study also utilized a mixed methods design to capture a greater understanding of students' flow experiences, which could be used to generate recommendations for instruction. Four research questions were posed related to whether or not students had flow experiences during reading activities in language arts class and whether these experiences differed as a result of individual differences (e.g., reading ability, reading motivation) and classroom activity. In all, two of the four hypotheses were supported by the data.

Predictors of Flow

As expected, there were no differences between groups on flow proneness across contexts. There were also no differences in how students described their flow experiences during interviews as a result of individual characteristics. Similarly, flow was not

predicted by reading ability when tested. Although there are no comparison studies measuring flow specifically in students with disabilities, this finding was not anticipated. The lack of differences could be related to the main theme identified during interviews, which is that students in general were motivated to succeed. Therefore, it could be that students' overall motivation to succeed in life drove them to engage more deeply with the activities regardless of their abilities (Duckworth, Peterson, Matthews, & Kelly, 2007). An alternative explanation is that the teacher was able to appropriately address students' needs during the activities so that all students had opportunities to deeply engage. Regardless, this finding does provide hope by suggesting that all students should be equally likely to achieve flow under the right circumstances (Nakamura & Csikszentmihalyi, 2005).

Activity Type

Similar to reading ability, activity type was not found to significantly predict flow in this model, contradicting the second hypothesis. This, too, could be a result of students consistently working hard because they understood their schoolwork was related to their future success (Duckworth et al., 2007; Linnenbrink & Pintrich, 2003). Upon further examination, scores on the experience sampling forms indicated that activity type had an effect on how well students were concentrating, their perceived skill level, and the perceived challenge of the activity. Students reported concentrating better when they were working independently as opposed to the group and assessment activities. This may be a result of students feeling more skilled and less challenged during this activity than the other two, according to reports on the ESF. These findings correspond to the lower

degrees of balance found on the FSS measures during the independent activity as well.

The group and assessment activities were comparable.

Although a definitive conclusion cannot be drawn since students were not specifically asked about the class activities in this study, it is likely that the group and assessment activities did not differ much because they were essentially the same. Students were asked to analyze separate portions of the same poem on two different days. What differed was that the group activity was accompanied by teacher assistance, whereas the assessment was independently completed. Surprisingly, students did not feel that the group activity was much easier than the assessment activity despite receiving assistance from their peers and their teacher. Due to the unique prose and language used in poetry, it may be the case that all students felt challenged by these activities regardless of their reading abilities. Even collectively, it may have been difficult to decipher each canto of the poem. An alternative explanation could be that students were first learning how to use the TPCASTT method and they found that process alone to be a challenge. Regardless of these differences on the ESFs, activity type overall did not predict flow scores as measured on the FSS.

Skill/Challenge Balance

Skill/challenge balance did significantly predict flow in this study after controlling for reading motivation, but not in the hypothesized direction. For students in this sample, decreases in balance resulted in small decreases in flow overall. This does not support the basis of flow theory or the majority of flow research with moderately to highly skilled individuals, which has found that balance is the primary predictor of flow

(e.g., Fullagar et al., 2013). Past research on flow has mainly been done in the context of interventions, so it is possible that when instruction occurs naturally, teachers adjust activities to teach to the average. That is, when activities are assigned to everyone, they may be balanced for the majority of students, but seem too easy or too hard for students on either end of the ability spectrum. It may also be that case that when students have support, either from a teacher or other students, they feel there is a better balance because they are not tasked with doing the activity alone.

In this case, although there were no significant differences between them, the independent activity was rated as slightly too easy, the assessment as slightly too challenging, and the group activity as having ideal balance. Considering the independent activity involved analyzing Genesis from the Bible whereas the other two dealt with analyzing poems, this may also be a result of background knowledge affecting balance in which students were more confident in their abilities to analyze Genesis because they were already familiar with the story of Adam and Eve. In contrast, they may have needed the others' assistance to feel confident analyzing poetry because poems do not follow traditional prose and story structure. A more likely explanation may stem from the study by Engeser and Rheinberg (2008) in which they found that flow during activities of medium or high importance was not linked to skill/challenge balance. This is supported by the ratings of importance on the FSS in which the ungraded group activity was rated as the least important, though still of relatively average importance. As such, balance was comparable across activities and its impact on flow was minimal. Finally, recoding of responses to a unidirectional scale may have resulted in some of the variability in balance

scores to be lost, which may also explain why the relationship between balance and flow was not as predicted.

Intrinsic Motivation

Intrinsic motivation for reading was also found to be a significant predictor of flow controlling for skill/challenge balance. Although it was not able to be directly tested in the original model, exploratory tests suggested that it should be included. As expected, averse readers had the lowest flow scores overall. Unexpectedly, ambivalent readers, high in both motivation and avoidance, scored highest on flow across activities as opposed to avid readers. This is particularly informative because two of the ambivalent readers were students with reading difficulties, supporting the idea that when demands are appropriate and students are engaged, they can achieve flow in reading activities (Nakamura & Csikszentmihalyi, 2005). It also refutes the notion that in order to enter flow, individuals need to be of above average skill at the onset (Nakamura & Csikszentmihalyi, 2005). Instead, individuals may be able to experience flow during skill acquisition as well as skill development. In conjunction with the finding that reading ability and flow collectively explain 27% of variability in reading motivation profiles, these results suggest that if teachers can incorporate instructional methods that establish the precursors of flow, students of all reading levels may have the opportunity to have a flow experience and subsequently increase their motivation to read.

Self-efficacy

There were significant differences between groups in alignment between self-efficacy beliefs about reading and reading performance. Students with reading difficulties

believed they were much better at reading than their standardized test scores indicated, whereas students without reading difficulties tended to underestimate their abilities, though to a lesser degree. These results support previous research in which students who were Black or had reading disabilities had inaccurate self-efficacy beliefs about reading, erring on the side of overestimation (Corkett et al., 2011; Linnenbrink & Pintrich, 2003). It is possible that the substantial misalignment found in the current sample is a result of an interaction between those two variables. This could not be examined, however, due to low racial diversity in the sample. No differences in alignment were found between gender groups, but there was a trend suggesting that gender accounts for a substantial portion of variability in alignment scores. It is likely that the small sample of males in this study made it difficult to accurately assess this comparison.

Ultimately, alignment did not predict flow when included in exploratory analyses, likely due to the inaccuracies. This does not mean that self-efficacy alone is not a predictor, though that was not investigated here. However, the overestimation reported by students with RD may work in their favor. Considering that individuals with low self-efficacy tend to put forth less effort and quit more easily when challenged (Bandura, 1997; Cantrell et al., 2017; Guthrie et al., 2009), inflated self-efficacy beliefs may motivate students to continue working on an activity even if it is hard for them. In order to challenge students at the appropriate level, though, it is important that teachers are aware of their students' efficacy beliefs because they will not always align with skill levels. As such, just because students perform poorly on reading assignments does not mean that they perceive their reading ability to be poor as well. If teachers are making

accommodations based on actual performance, students may perceive the activities to be too easy for them and disengage. It is unknown whether this misalignment will end up reaching a peak, after which students disengage because they feel they are already highly skilled when they actually are not (Linnenbrink & Pintrich, 2003). Thus, it may behoove teachers to have discussions with students about their abilities and help to correct this alignment. That way teachers can use performance data to adjust instruction and it can have the intended effect. Whether one of these strategies is better than the other has yet to be investigated.

Ability, Flow, and Motivation

The hypothesis that flow mediated the relationship between reading ability and reading motivation profile was not supported by the data. To date, no prior studies have investigated whether or not flow directly leads to increases in motivation. There have also been mixed findings regarding relationships between reading ability and motivation. Many researchers have found motivation to be lower for students with reading difficulties (e.g., Klauda & Guthrie, 2015), whereas others have found no relationship between the two (Proctor et al., 2014). It is therefore challenging to interpret the results of the mediation model.

There are three potential reasons why the indirect effect of reading ability on reading motivation profile was non-significant. First, there may not have been enough power to detect differences because of such a small sample, especially for a mediation analysis. Ideally, this analysis could be rerun with a larger sample to rule out this explanation. Second, when developing the RMQ measure, Guthrie et al. (2009) reported

that reading comprehension was related to intrinsic motivation for students who were White, whereas it was related to avoidance for students who were Black. The profiles used in this analysis combined the two and given the majority of the sample was Black, the profile may have masked some of the effect. However, the fact that there were significant findings in the hierarchical analyses and the intrinsic motivation scale was reliable with this sample suggest that this is not likely the case here. Third, the coefficients for reading ability and flow were in opposite directions. Whereas reading ability and motivation profiles were negatively related, flow and motivation were positively related, so these effects may have canceled out during analysis. Nevertheless, reading ability and flow together explained a substantial portion of variability in students' reading motivation profiles, suggesting that these variables do play a role in predicting motivation in some capacity.

Based on findings from the mediation and hierarchical models, it is difficult to determine the directionality of the relationship between flow and reading motivation because each predicts the other to some degree. Despite an autotelic experience being a major outcome of flow (Csikszentmihalyi, 1990, 1997), research to date has only examined the impact of motivation on flow, not vice versa. When explaining flow, Csikszentmihalyi (1997) has said that the feeling of intrinsic reward obtained from flow is what increases intrinsic motivation to do that activity again. Therefore, in educational settings, this is the outcome of interest because if flow can alter intrinsic motivation, then students will want to engage in that activity more frequently and their skills will inevitably improve with practice. Comparing the effect sizes of the relationship

between flow and motivation in both directions, it appears that there may be a stronger case arguing that flow predicts motivation.

Another interpretation is that this relationship is cyclical. That is, reading motivation levels may influence flow in the beginning until flow has been achieved. The more an individual experiences flow during that activity, the greater their intrinsic motivation for that activity becomes. Therefore, even those who are less motivated to read because of a disability or lack of interest, for example, may become motivated to do so under the right circumstances. If this is the case, providing opportunities for flow in the classroom can be critical in developing students' motivation to learn, which some researchers assert is the ultimate goal of education (Csikszentmihalyi, 1997; Ladson-Billings, 1995).

Student Insights

Interview data were analyzed to answer the final research question regarding students' flow experiences. Through this process, one overarching theme and a number of subthemes emerged related to flow, engagement, motivation, and reading. These data provided invaluable information in students' own words about what motivates them and what teachers can do to promote learning and engagement. The primary result obtained from the interview data was that students in this case study were motivated during school and leisure time by their future goals. Some students had specific goals (e.g., lawyer, veterinarian), while other students' goals were vaguer (e.g., be successful). Regardless, these students were predominantly self-motivated toward these goals and, as a result, they

reported being able to consistently endure challenges at home and in school in pursuit of these goals.

This concept of “perseverance and passion for long-term goals” is referred to as grit (Duckworth et al., 2007, p. 1087). Grit may partially explain why flow was not predicted by differences in reading ability or class activity. Individuals who are successful in life demonstrate greater grit than others (Duckworth et al., 2007). Their achievement is not based on intelligence or conscientiousness, but on effort, determination, and commitment to success. It is possible for grit to increase over time, but it is generally considered to be a stable trait. If grit is motivating students with reading difficulties and those from low income households to do well in school, teachers can use this to their advantage.

According to Linnenbrink and Pintrich (2003), motivation is higher when individuals are interested in an activity, they view the activity as useful, and they link the activity to their life goals. Teachers would benefit from taking time to learn about and understand the reasoning behind students’ goals. If teachers explain how and why particular content, skills, and assignments are relevant to students based on their specific goals, then students may be more motivated to learn about and do those things. Increasing the relevance of classroom instruction to students based on their individual situations should also increase interest and engagement. Teachers can also follow up on students’ goals periodically throughout the year noting any progress, achievements, or changes. Reviewing these data may help teachers long-term to better understand what works for students based on their passions and goals.

Engagement and Flow

A common suggestion for teachers to increase engagement is to make instruction interesting (Cantrell et al., 2017; Denton et al., 2015; Jennings et al., 2014b). Students reiterated the importance of being interested throughout their interviews, referring to interest as contributing to engagement and flow. They emphasized that interest played a key role in reading for pleasure, driving the division between averse and avid readers. It has been repeatedly found that averse readers do not read during leisure time (Ho & Guthrie, 2013; Jennings et al., 2014a; Wigfield & Guthrie, 1997), which was also the case here. When participants who were averse readers discussed books they did actually enjoy reading, though rare, they primarily enjoyed them because the content was interesting. In past research, individuals were found to reach flow during reading if they were interested in the material (McQuillan & Conde, 1996). Unfortunately, interest was not directly measured in this study. Two items on the ESF asked about students' desire to be doing something else, but these did not appear to be reliable. For the most part, students left the open-ended item blank or said they wanted to be doing the class activity, which may have been a result of social desirability. Student interviews revealed that their interests are generally not utilized during school, but this was assessed via a single question. In future research, interest should be examined more deeply particularly in terms of its relationship to flow.

During interviews, every student was able to describe a flow experience, many of which occurred during school. Moreover, nearly all nine components of flow were mentioned at least once in some capacity. Students indicated they were able to achieve

flow when they understood the activity (i.e., clear goals) and were challenged the right amount (i.e., balance). They also stated flow can provide ways in which to conduct a self-assessment of their skills (i.e., immediate feedback). Given the nature of the questions about flow, all activities described during interviews were those in which time passed quickly and students were deeply concentrated. Additionally, students indirectly noted control and an autotelic experience as outcomes of their flow experiences. In fact, the autotelic experience appeared to partly explain why students wanted to engage in these activities again as posited by Csikszentmihalyi (1997).

Positive affect has been thought to be another consequence of flow (Csikszentmihalyi, 1997; Moneta & Csikszentmihalyi, 1996; Nakamura & Csikszentmihalyi, 2005). In general, people tend to do things because they are enjoyable (Rheinberg, 2008), and students in this case were no exception. The more they liked the feeling of being in flow, the more they wanted to participate in that activity again. Researchers also suggest that cognitive efficiency may be an outcome of flow (Moneta & Csikszentmihalyi, 1996). While students stated cognition was important during flow, the activities seemed to involve deep thinking. It is unclear whether this thinking occurs relatively automatically (i.e., action-awareness merging) or whether it is effortful, but the effort they put forth did not appear to negatively affect their experiences.

Teaching Behaviors

Overall, students recognized that their language arts teacher provided them with access to skills and materials that they did not have before her class and could pinpoint ways in which their reading skills and habits had changed as a result. Using their own

words, students identified scaffolding, small group discussions, and introducing new strategies as ways in which their teacher helped them develop their skills and stay engaged. They also mentioned her ability to make obscure or challenging content relevant by referencing similar examples that students could better understand. Perhaps most relevant to flow theory, students appreciated that the teacher challenged them. Challenges occurred both in quantity (e.g., reading more books) and quality (i.e., increasingly difficult content). In most cases this challenge was not so far above their skills that they could not complete an activity. This may be compared to the idea of “just manageable levels” of difficulty (Nakamura & Csikszentmihalyi, 2005, p. 90), which is ideal for fostering flow because increased engagement and increased perceived difficulty are directly related (Shernoff et al., 2003). In general, students described challenge as being partly responsible for their flow experiences across contexts. Based on interview data, it appeared that this teacher was able to effectively challenge the majority of her students throughout the semester.

In addition to the instructional behaviors already mentioned, students also explained personal characteristics of teachers that help them remain engaged. These included attributes related to delivery and presence, like body language and tone of voice. Of note, students reported being more engaged when teachers were able to convey their passion for teaching through their instruction by demonstrating their commitment and investment to student learning. The teacher participant in this study was generally confident in her instructional abilities across the board except in terms of engagement. This may be a common issue in situations like the current case in which teachers struggle

to engage students of different racial and socioeconomic backgrounds from themselves (Bingham & Okagaki, 2012; Emdin, 2016). Despite the teacher having high multicultural efficacy beliefs, she may feel less confident in her ability to incorporate student diversity during instruction. Currently, there are few recommendations to specifically help teachers engage students of diverse racial and ethnic backgrounds (Bingham & Okagaki, 2012), but new developments stemming from culturally relevant pedagogy could provide ways to do this (Emdin, 2016; Milner, 2017), which could lead to increased interest, motivation, and engagement among students.

The teacher was already described as using scaffolded instruction to facilitate student learning, which is suggested by CRP. Scaffolding may be particularly important for flow. By first observing the teacher complete an activity and then working on it together with the teacher, students receive corrective feedback by a knowledgeable individual. Once they are able to complete the activity on their own, students should be able to provide their own immediate feedback to themselves while they are engaged. It may also benefit teachers to teach students how to self-monitor (Mace, Belfiore, & Hutchinson, 2001). Similar to scaffolding, self-monitoring involves students observing and recording their own behaviors (e.g., underlining a passage, silently reading). This can help students self-correct if they get off task. In a meta-analysis of self-monitoring research on students with disabilities, the researchers found that when students were able to use self-monitoring methods during instruction, their reading improved and this was evident across reading skills (Joseph & Eveleigh, 2011). The researchers suggested that self-monitoring is particularly helpful when students are working on new and/or

challenging tasks. Thus, scaffolding and self-monitoring together may provide students with excellent opportunities to learn how to give themselves immediate feedback to increase their chances of having a flow experience.

One of the core tenets of CRP that tends to be ignored, especially by non-minority teachers, is that of social justice, in which students are encouraged to critically think about and discuss issues that affect them. During interviews, multiple students mentioned social justice issues to some degree, whether they were reading about them or getting involved in their communities. Although these behaviors appeared to be self-driven, teachers can promote this engagement in all students if they effectively address social justice issues within the curriculum.

Implications and Recommendations

There are severe achievement gaps in reading among students based on race, ability, and socioeconomic status that are pervasive and stable across time and individuals (NAEP, 2015, 2018). Flow theorists propose that flow experiences are one way in which teachers can engage and motivate students to learn (e.g., Csikszentmihalyi, 1997). To date, however, research on flow has focused primarily on high-achieving individuals of middle to high socioeconomic status. There has also not been research on flow during reading for over two decades. This current study adds to the research base by examining flow experiences during language arts classes in high school students with and without reading difficulties in a Title I school. Engagement and motivation have strong effects on achievement, especially for students with reading difficulties (Klauda & Guthrie, 2015; Lee & Zentall, 2012; Melekoglu & Wilkerson, 2013). Minority students

and students with disabilities, however, tend to exhibit lower motivation toward reading (e.g., Guthrie et al., 2009) and less engagement in class, which is especially true when teachers are not of students' same racial or cultural background (Bingham & Okagaki, 2012; Emdin, 2016). My findings suggest that while reading motivation specifically appears to be ingrained by high school, it may still be amenable to change if students are given opportunities to experience flow during reading. Thus, the outcomes of this research can contribute to understanding instructional factors that are important in helping these students learn and perform better.

This study also expanded upon existing literature by utilizing a mixed methods design. Previous research on flow has predominantly been either quantitative or qualitative, but rarely both (Jackson & Marsh, 1996). The design implemented here allowed for the qualitative findings to help explain the quantitative findings (e.g., why activity type did not predict flow). Without the additional interview data, it would have been extremely difficult to make inferences explaining the quantitative results. Furthermore, this study also examined flow in the context of naturally occurring instruction. Typically, flow research is studied during interventions (e.g., Fullagar et al., 2013) in which skill/challenge balance can be manipulated to maximize the potential for flow or any other state predicted by flow theory. In natural settings, this is more challenging because activities are not assigned for the sake of exploring flow; students still need to be able to learn and succeed. As such, findings from this study may not align with prior flow research in some instances (e.g., balance predicting flow), but this is a likely explanation.

Perhaps the most important recommendation for teachers as a result of this study is to take the time to learn about their students. In addition to understanding students' reading habits, including self-efficacy beliefs and motivation, it is critical for teachers to know what behaviors students believe benefit their learning and engagement. It is important that student interests, values, and goals are incorporated into instruction in creative ways to improve these outcomes. The recommendations made here were selected by considering current findings in conjunction with extant research. By adopting these recommendations into the classroom, teachers will offer students more opportunities to engage with the material, potentially leading to a flow state and ultimately increasing motivation to engage in the future. A summary of these recommendations include (a) use research-based and student-suggested instructional methods; (b) demonstrate a passion for teaching; (c) customize classroom activities to include students' interests, values, and abilities; (d) offer students greater opportunities for autonomy over their learning; and (e) challenge students at manageable levels. Throughout each of these, teachers need to consider how they can meet the needs of students who are racially and ethnically diverse. In addition, teachers should keep track of student data related to engagement, motivation, and achievement as they incorporate each of these recommendations to determine which methods work well and for whom.

As described earlier, students reported being more engaged when teachers make use of small group instruction, scaffolding, and drawing relevant connections between class content and students' background knowledge. Students also acknowledged the importance of what some researchers call teacher involvement (Guthrie, Wigfield, &

You, 2012), which encompasses things like caring for students and conveying a passion for teaching. Body language and oral delivery of information can affect engagement as well. According to students, they are more engaged themselves when they can observe teachers also engaging with the material. Researchers also suggest explicitly teaching students how to self-monitor as a way to increase engagement and achievement in reading, particularly for those who are low-performing (Joseph & Eveleigh, 2011).

An important thread throughout the interviews was that students do not have many opportunities to incorporate their interests or values into instruction. According to research, this is a mistake. Both engagement and motivation increase when students are interested in an activity and understand how it relates to their values (Lau, 2009; Linnenbrink & Pintrich, 2003). Students in this study were primarily driven by their future goals but reported that reminders to keep pushing toward success came from either themselves or their parents. Teachers should actively relate content and skills back to student goals, demonstrating why these things are important to learn. One way to do this is through intrinsic goal framing in which teachers explain the importance of class activities in terms of how they directly benefit their students (Guthrie et al., 2012). Essentially, teachers frame these activities by saying how it can “help you” rather than what can be learned more generally (p. 626). Teachers should also relate instruction to student interests and identities as suggested by culturally relevant pedagogy (Ladson-Billings, 1995; Milner, 2017). This can be difficult since no two students are the same, so one suggestion is to offer students more autonomy over their learning.

Students and researchers both reference the importance of autonomy in the classroom as promoting engagement and motivation across content areas (Assor, 2012; Emdin, 2011, 2016) including language arts (Guthrie et al., 2012). Whenever possible, allowing students to choose the materials they read in class would greatly increase opportunities for flow. However, this may not be an option in traditional classrooms given a standards-based curriculum. In all classrooms, regardless of flexibility of content, teachers should consider ways in which to adapt classroom activities and assignments to accommodate students' interests and strengths, including cultural differences. In terms of culture specifically, two researchers have recently offered excellent explicit suggestions for ways in which to accomplish this (Emdin, 2016; Milner, 2017), even in the context of the Common Core Standards, which teachers reported hindered their use of culturally relevant pedagogy in the classroom (Young, 2010).

Milner (2017) presented 16 testable features of culturally relevant pedagogy in hopes that they would increase the use of CRP in classrooms. Each of the features he outlined is accompanied by clear directions on how it can be implemented. These are fully presented on page 21 of this report, but include things like using clear language, viewing students as knowledgeable, and partnering with parents to better understand their students. Similarly, Emdin (2011, 2016) developed reality pedagogy as an outgrowth of both culturally relevant pedagogy and critical pedagogy due to their theoretical nature and limitations of applicability. In reality pedagogy, Emdin presented strategies for effectively teaching minority students, particularly for teachers who are White. He refers

to these strategies as the seven Cs (Emdin, 2016). Although these were initially developed through research in science classrooms, they can apply across content areas.

First, teachers and students should engage in co-generative dialogues, also called *cogens*, which occur in small groups outside of instructional time. During these sessions, teachers ask students for their input on how instruction can improve, ensuring their opinions are heard and are considered valuable. Second, teachers and students should *co-teach*. In reality pedagogy, this refers to students leading classroom instruction and teachers offering students flexibility to present the content for which they are responsible in whatever way best suits their strengths (e.g., music, art). Third, students should actively participate in activities that help the school overall, which Emdin calls a *cosmopolitan* school structure. Fourth, teachers need to understand the *context* in which their students live, which requires being present and involved in students' communities. Fifth, teachers should not approach instruction as *content* experts. Rather, teachers should demonstrate to students that they, too, sometimes struggle to understand the material and pose questions to the class that they can solve together. Sixth, teachers should assign activities that foster *competition* in which students work in small groups to determine creative ways to present material to the class. Finally, teachers and students should engage in self-reflection, or *curation*, in which they watch videos of themselves during instruction and identify areas in need of improvement as well as things they are doing well.

There is some overlap in the strategies suggested by both researchers, indicating that those techniques may be of higher importance (e.g., getting involved in students'

communities, engaging in self-reflection). Ultimately, if teachers are able to include Milner's (2017) and Emdin's (2016) suggestions, which place a high value on student diversity, students will be more engaged in class and likely experience flow more often. By allowing students more control to adapt learning based on their needs, all students can find ways to make instruction interesting. Thus, these strategies provide teachers with clear avenues through which they can foster students' intrinsic motivation to read regardless of race, ability level, or socioeconomic status.

A final recommendation based on my findings that both students and researchers tout is critical for engagement, flow, and learning is teachers must provide manageable challenges (e.g., Nakamura & Csikszentmihalyi, 2005). This can be difficult because students within a single classroom can have vastly different learning needs based on their skill levels. One way that teachers can approach this is by using the Learner's Growth Model Improved by Flow Theory (GMIF), which outlines the appropriate level(s) of task difficulty based on students' levels of skill and knowledge to maximize opportunities for flow, even if individuals have no background knowledge or skills related to the activity (Challco et al., 2016). This model is accompanied by a database of activities that uses an algorithm to identify specific activities that could be used in each instance. As students' knowledge and skills develop, the algorithm recommends increasingly difficult activities so students can continue to experience flow. It should be noted that although there is a maximum difficulty level of 4 (*very difficult*), this does not imply that there are ceiling effects. Rather, individuals who are advanced in skills and knowledge in a particular

domain must continually challenge themselves to a high degree in order to regularly experience flow during those activities.

Although flow theorists suggest that flow can only be achieved in individuals who are above average on a skill (Moneta & Csikszentmihalyi, 1996), results of this study demonstrate that is not always the case. Some students with reading difficulties scored higher on flow measures than their peers without RD during reading activities. It may be the case, though, that individuals are more easily able to enter a flow state when they are somewhat skilled because certain aspects of the tasks may be completed more automatically, which is a key component of flow. This might also be why researchers assert that people are especially inclined to participate in activities when they are competent in them (e.g., Melekoglu & Wilkerson, 2013). However, students of all backgrounds and abilities are able to achieve flow in certain contexts when the precursors to flow are present, including appropriate levels of challenge. The GMIF provides teachers with a specific resource they can use to tailor instruction to students' skills to promote flow and ultimately motivation.

Limitations and Future Directions

The limitations in this study can be grouped into two domains: design and measurement. First, this study utilized a case study design as it was the most appropriate given the sample of participants. The case study method provided fruitful information about a unique case that is generally not studied in other research (i.e., high school students with and without disabilities in a Title I public charter high school). This uniqueness, however, limits the generalizability of these findings to other cases or

classrooms more broadly. It is possible that this charter school allows teachers more flexibility in their instruction than would typical public schools. I was also unable to compare findings across teachers to better understand how their methods impacted engagement and flow. Since teacher variables were not the main focus of this study, teacher data in general is limited as information was not obtained about the teacher's background knowledge regarding flow and its relationship to engagement and motivation. Moreover, the teacher participant in this study had been working with underprivileged students since she began teaching and may be more culturally aware than others in her position who are newer to that community. In the future, collecting more teacher data from more participants on their perceptions of their students and instruction, particularly in regards to culturally relevant pedagogy and flow, would benefit the field greatly.

Along the same lines, the student sample was rather small, which also impacts external validity. The sample size could have affected the statistical power of the hierarchical and mediation analyses, resulting in unexpected or null findings that may be significant in larger samples. Furthermore, due to the limited racial diversity in the student sample, this variable of interest could not be assessed in this study. Additionally, while reading occurs across content areas in high school, it was only measured during language arts classes in this study and two of the activities in which flow was measured involved analyzing a poem. It is possible that students do not engage with poetry in the same way as they can with a novel due to the way in which poems are written. Similarly, the other material students read during this study was the Bible. This, too, is different

from traditional text, so it is difficult to compare the present findings to those in other studies that examined outcomes related to traditional expository and narrative texts. Future research should continue to measure flow and engagement for students with and without disabilities from low-income families, but should include larger samples of students taught by different teachers. Comparisons could also be made across school settings (e.g., public versus private, urban versus rural), content areas (e.g., social studies and science), and genres of text.

Another limitation is that this case study was neither an experimental nor pre/post design. Flow data were collected at three time points within the same week, which did not allow time for growth or changes to occur. The measures of individual differences and reading ability were only administered on one occasion, so there is no way to compare how the teacher impacted student learning aside from student interview data. Moreover, a researcher neither dictated nor observed the exact elements of instruction that could have influenced engagement and flow, so information about the classroom activities was limited. Although collecting data in the natural context does have benefits to understanding student outcomes, causality cannot be definitively determined without the use of an experimental design. Thus, it may benefit the field to have more research done using both methods.

On the one hand, studying flow during typical classroom instruction can give researchers a sense of what activities are already being implemented and how they might be improved in ways that teachers could actually use. On the other hand, now that there are testable features of culturally relevant and reality pedagogies, researchers should

investigate changes in instruction and student outcomes as a result of CRP professional development opportunities, especially in high poverty schools with primarily minority students. It would also be of use to researchers and educators to develop a valid and reliable tool to measure teachers' understanding of CRP and how they use it with their students. Across both designs, longitudinal data would also be informative to see if engagement and motivation do in fact change across time based on flow experiences in school, especially for students with disabilities. It could also be informative to track student data after high school to understand how reading ability, motivation, and flow predict achievement of their goals (e.g., going to college).

In terms of measurement, the main limitation in this study was that the surveys used to collect flow data neither capture the entire flow experience (Nakamura & Csikszentmihalyi, 2005; Rheinberg, 2008), nor is there a cut-point above which flow can be said to have occurred (Moneta, 2012). Thus, although inferences can be made by comparing flow scores, it is impossible to say for certain whether students experienced flow at any given time through either survey type. Interview data, while informative, were neither collected immediately following a classroom activity, nor were the questions asked specific to the activities students completed in this study. Using event-focused interviews directly after an activity of interest may provide more conclusive data regarding whether or not flow was achieved (Jackman et al., 2017).

There were also issues with reliability on some measures used in this study despite high reliability during survey development. For instance, the Flow Short Scale had lower reliabilities on some occasions, but not others. Data from this measure could

have therefore impacted how flow was related to other constructs, like skill/challenge balance or motivation. Additional research is needed to determine whether this scale can be reliably used on multiple occasions within a short time and if reliability impacts the relationship between balance and flow. Similarly, the avoidance subscale of the Reading Motivation Questionnaire was lower than anticipated for this sample. Seeing as avoidance is included in reading motivation profiles, the mediation analysis may have been affected by this issue. This may partly explain why ability and flow accounted for substantial variability in motivation profiles, but the relationships did not achieve significance.

No reliability data could be obtained for the experience sampling forms because each item was analyzed individually. Therefore, while it does provide data that cannot be obtained elsewhere regarding students' experiences during each activity, scores may not fully capture each construct. In addition, the open-ended questions did not provide much information beyond confirming that students were on task and they were content doing the activity. This may have been an issue of social desirability because the surveys were collected by their teacher. In the future, a researcher should be present to administer and collect the flow surveys as well as observe the classroom activities. Through observations, researchers can determine whether students are actually on task or if they are just reporting to be engaged on the forms.

Conclusion

In this study, I sought to compare flow experiences across students and activities in Title I high school language arts classes. Students with and without reading difficulties

completed a reading assessment along with measures of individual differences, flow surveys on three occasions, and follow-up interviews. Initial findings revealed that these students were all capable of entering flow given the right circumstances and that flow was related to reading motivation and skill/challenge balance. While there were differences in flow experiences during reading activities between students, there were no differences in flow based on the activities assessed. In addition, flow combined with reading ability predict a substantial portion of variability in reading motivation profiles (i.e., intrinsic motivation and avoidance). Furthermore, although alignment between students' self-efficacy beliefs and reading comprehension skills was good overall, the relationship was qualified by significant differences based on reading ability such that students with reading difficulties substantially overestimated their abilities.

During interviews, students revealed that they were primarily motivated to complete their work and do well in school to achieve their future goals of going to college and being successful adults. They were mainly self-driven toward these goals and described alternatives based on their socioeconomic circumstances as not being viable options (e.g., prison, military). In general, the students were split in terms of their motivation to read but found ways to engage during class activities involving reading because they were relevant to their goals. Students also discussed behavioral and instructional characteristics of teachers that increased engagement, the area in which the teacher participant felt least confident. They further reported experiencing flow in school as well as at home on multiple occasions in various contexts. Across students, activities

that were conducive to flow were those that students were motivated to do again, if for no other reason than the outcomes of intrinsic rewards and positive affect.

These findings can be used help teachers determine ways in which to adjust their instruction to improve engagement and motivation by establishing contexts in which flow can occur. Teachers can more effectively teach their students of all races and abilities by allowing them more autonomy to incorporate their interests within the curriculum and linking instruction to students' goals and values. Specific recommendations to improve instruction for students with diverse backgrounds and skill levels have been suggested in the contexts of culturally relevant pedagogy (Milner, 2017), reality pedagogy (Emdin, 2016), and GMIF (Challco et al., 2016). Future research should collect data from larger samples, including teachers, as well as assess longitudinal data of students from low-income backgrounds to better understand how their skills, behaviors, and goals change over time as a result of flow experiences in school and how these factors affect success after high school. Data should be collected both in natural and experimental contexts to gain a more complete understanding of what is already occurring and how changes in instruction affect student outcomes. Professional development opportunities on CRP should be provided to all teachers as a critical component of effective instruction for minority students regardless of the diversity of the student body. Finally, researchers should continue to study engagement, motivation, and flow in these underrepresented groups using mixed methods designs with observations to gain deeper understandings of how and why certain relationships occur.

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APPENDIX A

DEMOGRAPHIC SURVEYS

Student Demographic Questionnaire

Please fill out the following information. Write in or circle your answer as instructed.

1. **Age:** _____
2. **Grade (circle one):**
 - a) 10th
 - b) 11th
3. **School:** _____
4. **Teacher ID:** _____
5. **Gender (circle one):**
 - a) Male
 - b) Female
 - c) Other (please specify): _____
6. **Race (circle one):**
 - a) Caucasian or White
 - b) African American or Black
 - c) Hispanic or Latino/a
 - d) Asian or Pacific Islander
 - e) Multiple (please specify): _____
 - f) Other (please specify): _____
7. **Please circle all of the following that apply to you.**

a. None	g. Intellectual disability (ID)
b. Specific learning disability (SLD)	h. Blindness or visual impairment
c. Autism	i. Deafness or hearing impairment
d. Speech or language impairment (SLI)	j. Other health impairment (OHI); (e.g., ADHD)
e. Emotional disturbance (ED)	k. Multiple disabilities
f. Traumatic brain injury	l. Orthopedic impairment
8. **English is my first language (circle one):**

YES
NO

Teacher Demographic Questionnaire

1. **Age:** _____
2. **Educational background:**
 - a) Bachelor's degree
 - b) Master's degree
 - c) Doctorate degree
 - d) Other (please specify): _____
3. **Years teaching:** _____
4. **Current school:** _____
5. **Classes currently teaching (subject and grade level):** _____

6. **Gender (circle one):**
 - a) Male
 - b) Female
 - c) Other (please specify): _____
7. **Race (circle one):**
 - a) Caucasian or White
 - b) African American or Black
 - c) Hispanic or Latino/a
 - d) Asian or Pacific Islander
 - e) Multiple (please specify): _____
 - f) Other (please specify): _____
8. **Please list all areas in which you are licensed to teach:** _____

9. **Do you have experience teaching students with disabilities? (circle one)**

YES NO

If yes, please describe (e.g., how many years, disability categories, etc.). _____

10. What is your approximate socioeconomic status? (circle one)

Lower

Lower Middle

Middle

Upper Middle

Upper

APPENDIX B

FLOW PRONENESS QUESTIONNAIRE

Instructions: Please read the questions below and respond using the following scale. Answer honestly as there are no right or wrong answers. Please raise your hand if you have a question.

1 = **2 =** **3 =** **4 =** **5 =**
Never **Rarely** **Sometimes** **Often** **Every day/
 almost every day**

Part 1: When you do something at school, how often does it happen that:

	Never				Every day
1. You feel bored?	1	2	3	4	5
2. It feels as if your ability to perform what you do completely matches how difficult it is?	1	2	3	4	5
3. You have a clear picture of what you want to achieve and what you need to do to get there?	1	2	3	4	5
4. You are conscious of how well or poorly you perform what you are doing?	1	2	3	4	5
5. You feel completely concentrated?	1	2	3	4	5
6. You have a sense of complete control?	1	2	3	4	5
7. What you do feels extremely enjoyable to do?	1	2	3	4	5

Part 2: When you do something in your *leisure* time, how often does it happen that:

	Never				Every day
1. You feel bored?	1	2	3	4	5
2. It feels as if your ability to perform what you do completely matches how difficult it is?	1	2	3	4	5
3. You have a clear picture of what you want to achieve and what you need to do to get there?	1	2	3	4	5
4. You are conscious of how well or poorly you perform what you are doing?	1	2	3	4	5
5. You feel completely concentrated?	1	2	3	4	5
6. You have a sense of complete control?	1	2	3	4	5
7. What you do feels extremely enjoyable to do?	1	2	3	4	5

Part 2: How much confidence do you have in your ability to *perform* each of the following *skills*?

	None											Complete
15. Recognize letters	0	10	20	30	40	50	60	70	80	90	100	
16. Pronounce individual words	0	10	20	30	40	50	60	70	80	90	100	
17. Recognize parts of speech (nouns, verbs, adjectives)	0	10	20	30	40	50	60	70	80	90	100	
18. Recognize grammatically correct sentence structure	0	10	20	30	40	50	60	70	80	90	100	
19. Understand the meaning of plurals, verb tenses, prefixes, and suffixes	0	10	20	30	40	50	60	70	80	90	100	
20. Understand compound and complex sentences	0	10	20	30	40	50	60	70	80	90	100	
21. Phonetically "sound out" new words	0	10	20	30	40	50	60	70	80	90	100	
22. Recognize the "main points" or theme in a passage or short story	0	10	20	30	40	50	60	70	80	90	100	
23. Use previous knowledge to help understand new material	0	10	20	30	40	50	60	70	80	90	100	

APPENDIX D

READING MOTIVATION QUESTIONNAIRE

Instructions: Please read the questions below and respond using the following scale. Answer honestly as there are no right or wrong answers. Please raise your hand if you have a question.

	1 = Never	2 = Not usually	3 = Usually	4 = Always	
		Never		Always	
1.	Do you enjoy reading books in your free time?	1	2	3	4
2.	Do you need extra help in reading?	1	2	3	4
3.	Are you a good reader?	1	2	3	4
4.	Can you figure out hard words when reading?	1	2	3	4
5.	Do you like to read new books?	1	2	3	4
6.	Is it hard for you to understand stories you read in class?	1	2	3	4
7.	Do you guess a lot when reading so you can finish quickly?	1	2	3	4
8.	Is reading boring to you?	1	2	3	4
9.	Do you read easier books so you don't have to work as much?	1	2	3	4
10.	Can you sound out long words?	1	2	3	4
11.	Do you make lots of mistakes in reading?	1	2	3	4
12.	Do you learn more from reading than most students in the class?	1	2	3	4
13.	Are the books you read in class too difficult?	1	2	3	4
14.	How often do you try to find a good book?	1	2	3	4
15.	Do you enjoy the challenge of reading a book?	1	2	3	4
16.	Do you feel others are smarter than you in reading?	1	2	3	4
17.	How often do you think "I don't want to read this"?	1	2	3	4
18.	Can you recognize words easily when you read?	1	2	3	4

	Never			Always
19. Do you think you'll do well in reading next year?	1	2	3	4
20. Do you enjoy reading interesting books for a long period of time?	1	2	3	4
21. Is reading to the class a challenge for you?	1	2	3	4
22. Do you enjoy reading books for a long period of time?	1	2	3	4
23. Do you try to get out of reading books for school?	1	2	3	4
24. Are you good at remembering words?	1	2	3	4
25. Do you wish you didn't have to read for school?	1	2	3	4
26. Do you read as little as possible?	1	2	3	4
27. Do you like it when books make you think?	1	2	3	4
28. Do hard words in a story stop you from reading?	1	2	3	4

APPENDIX E

TEACHER EFFICACY MEASURES

Teacher's Sense of Efficacy Scale (TSES)

Instructions: Read the questions below and consider how confident you are in your abilities to do each. Circle how well you feel you can accomplish each task based on the scale below.

	0	1	2	3	4	5	6	7	8	9		
	Not at all			Very little		Some influence		Quite a bit		A great deal		
				Not at all		Very Little		Some Influence		Quite a bit		Great deal
1. To what extent can you use a variety of assessment strategies?	0	1	2	3	4	5	6	7	8	9		
2. To what extent can you provide an alternative explanation or example when students are confused?	0	1	2	3	4	5	6	7	8	9		
3. To what extent can you craft good questions for your students?	0	1	2	3	4	5	6	7	8	9		
4. How well can you implement alternative strategies in your classroom?	0	1	2	3	4	5	6	7	8	9		
5. How much can you do to control disruptive behavior in the classroom?	0	1	2	3	4	5	6	7	8	9		
6. How much can you do to get children to follow classroom rules?	0	1	2	3	4	5	6	7	8	9		
7. How much can you do to calm a student who is disruptive or noisy?	0	1	2	3	4	5	6	7	8	9		

	Not at all			Very Little		Some Influence		Quite a bit		Great deal
8. How well can you establish a classroom management system with each group of students?	0	1	2	3	4	5	6	7	8	9
9. How much can you do to get students to believe they can do well in schoolwork?	0	1	2	3	4	5	6	7	8	9
10. How much can you do to help your students value learning?	0	1	2	3	4	5	6	7	8	9
11. How much can you do to motivate students who show low interest in schoolwork?	0	1	2	3	4	5	6	7	8	9
12. How much can you assist families in helping their children do well in school?	0	1	2	3	4	5	6	7	8	9

Teacher's Sense of Efficacy for Literacy Scale (TSELI)

Instructions: Read the questions below and consider how confident you are in your abilities to do each. Circle how well you feel you can accomplish each task based on the scale below.

0 Not at all	1	2	3 Very little	4	5 Some influence	6	7 Quite a bit	8	9 A great deal	
			Not at all		Very Little	Some Influence		Quite a bit	Great deal	
1. To what extent can you use a student's oral reading mistakes as an opportunity to teach effective reading strategies?	0	1	2	3	4	5	6	7	8	9
2. To what extent can you use a variety of informal and formal reading assessment strategies?	0	1	2	3	4	5	6	7	8	9
3. To what extent can you adjust reading strategies based on ongoing informal assessments?	0	1	2	3	4	5	6	7	8	9
4. To what extent can you provide specific, targeted feedback to students during oral reading?	0	1	2	3	4	5	6	7	8	9
5. To what extent can you adjust writing strategies based on ongoing informal assessments of your students?	0	1	2	3	4	5	6	7	8	9
6. How much can you do to meet the needs of struggling readers?	0	1	2	3	4	5	6	7	8	9
7. To what extent can you help your students monitor their own use of reading strategies?	0	1	2	3	4	5	6	7	8	9
8. To what extent can you provide your students with opportunities to apply their prior knowledge to reading tasks?	0	1	2	3	4	5	6	7	8	9

	Not at all			Very Little		Some Influence		Quite a bit		Great deal
9. To what extent can you get students to read fluently during oral reading?	0	1	2	3	4	5	6	7	8	9
10. To what extent can you model effective reading strategies?	0	1	2	3	4	5	6	7	8	9
11. To what extent can you implement effective reading strategies in your classroom?	0	1	2	3	4	5	6	7	8	9
12. To what extent can you help your students figure out unknown words when they are reading?	0	1	2	3	4	5	6	7	8	9
13. To what extent can you implement word study strategies to teach spelling?	0	1	2	3	4	5	6	7	8	9
14. To what extent can you use students' writing to teach grammar and spelling strategies?	0	1	2	3	4	5	6	7	8	9
15. To what extent can you model effective writing strategies?	0	1	2	3	4	5	6	7	8	9
16. To what extent can you use flexible grouping to meet individual student needs for reading instruction?	0	1	2	3	4	5	6	7	8	9
17. To what extent can you integrate the components of language arts?	0	1	2	3	4	5	6	7	8	9
18. To what extent can you get children to talk with each other in class about books they are reading?	0	1	2	3	4	5	6	7	8	9
19. To what extent can you recommend a variety of quality children's literature to your students?	0	1	2	3	4	5	6	7	8	9

	Not at all			Very Little		Some Influence		Quite a bit		Great deal
20. To what extent can you provide children with writing opportunities in response to reading?	0	1	2	3	4	5	6	7	8	9
21. How much can you do to adjust your reading materials to the proper level for individual students?	0	1	2	3	4	5	6	7	8	9
22. How much can you motivate students who show low interest in reading?	0	1	2	3	4	5	6	7	8	9

Multicultural Efficacy Scale

Section A

Definition: The authors intend the terms “diversity” and “people different from me” to include people of different races, ethnic groups, cultures, religions, socioeconomic classes, sexual orientations, and physical abilities.

Directions: Please choose the word that best describes your experience with people different from you by circling the corresponding response.

	Never	Rarely	Occasionally	Frequently
1. As a child, I played with people different from me.	1	2	3	4
2. I went to school with diverse students as a teenager.	1	2	3	4
3. Diverse people lived in my neighborhood when I was a child growing up.	1	2	3	4
4. In the past I chose to read books about people different from me.	1	2	3	4
5. A diverse person was one of my role models when I was younger.	1	2	3	4
6. In the past I chose to watch TV shows and movies about people different from me.	1	2	3	4
7. As a teenager, I was on the same team and/or club with diverse students.	1	2	3	4

Section B

Directions: Respond to each statement by choosing one answer that best describes your reaction to it. There are no right or wrong answers. ***Please note the response options have changed.***

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
8. Teachers should adapt lesson plans to reflect the different cultures represented in the classroom.	1	2	3	4
9. Teachers should provide opportunities for children to share cultural differences in foods, dress, family life, and beliefs.	1	2	3	4

		Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
10.	Discussing ethnic traditions and beliefs in school leads to disunity and arguments between students from different cultures.	1	2	3	4
11.	Children should be taught mostly by teachers of their own ethnic and cultural background.	1	2	3	4
12.	It is essential to include the perspectives of diverse groups while teaching things about American history that are common to all Americans.	1	2	3	4
13.	Curricula and textbooks should include the contributions of most, if not all, cultural groups in our society.	1	2	3	4
14.	The classroom library should reflect the racial and cultural differences in the class.	1	2	3	4

Section C

Directions: To the best of your knowledge, self-assess your own ability to do the various items listed below.

Key: **A = I do not believe I could do this very well.**
B = I could probably do this if I had to, but it would be difficult for me.
C = I believe that I could do this reasonable well, if I had time to prepare.
D = I am quite confident that this would be easy for me to do.

15.	I can provide instructional activities to help students to develop strategies for dealing with racial confrontations.	A	B	C	D
16.	I can adapt instructional methods to meet the needs of learners from diverse groups.	A	B	C	D
17.	I can develop materials appropriate for the multicultural classroom.	A	B	C	D
18.	I can develop instructional methods that dispel myths about diverse groups.	A	B	C	D
19.	I can analyze instructional materials for potential stereotypical and/or prejudicial content.	A	B	C	D
20.	I can help students to examine their own prejudices.	A	B	C	D

21.	I can present diverse groups in our society in a manner that will build mutual respect.	A	B	C	D
22.	I can develop activities that increase the self-confidence of diverse students.	A	B	C	D
23.	I can provide instruction showing how prejudice affects individuals.	A	B	C	D
24.	I can plan instructional activities to reduce prejudice toward diverse groups.	A	B	C	D

Key: **A = I do not believe I could do this very well.**
B = I could probably do this if I had to, but it would be difficult for me.
C = I believe that I could do this reasonable well, if I had time to prepare.
D = I am quite confident that this would be easy for me to do.

25.	I can identify cultural biases in commercial materials used in teaching.	A	B	C	D
26.	I can help students work through problem situations caused by stereotypical and/or prejudicial attitudes.	A	B	C	D
27.	I can get students from diverse groups to work together.	A	B	C	D
28.	I can identify school practices that may harm diverse students.	A	B	C	D
29.	I can identify solutions to problems that may arise as the result of diversity.	A	B	C	D
30.	I can identify the societal forces which influence opportunities for diverse people.	A	B	C	D
31.	I can identify ways in which various groups contribute to our pluralistic society.	A	B	C	D
32.	I can help students take on the perspective of ethnic and cultural groups different from their own.	A	B	C	D
33.	I can help students view history and current events from diverse perspectives.	A	B	C	D
34.	I can involve students in making decisions and clarifying their values regarding multicultural issues.	A	B	C	D

Note: The following item is different from the others in this section.

35. Choose the position which most closely reflects your strongest beliefs about teaching.

A = If every individual learned to accept and work with every other person, then there would be no intercultural problems.

B = If all groups could be helped to contribute to the general good and not seek special recognition, we could create a unified America.

C = All cultural groups are entitled to maintain their own identity.

D = All cultural groups should be recognized for their strengths and contributions.

E = Some groups need to be helped to achieve equal treatment before we can reach the goals of a democratic society.

APPENDIX F

FLOW SHORT SCALE

Instructions: Please answer the following questions in relation to the activity you just completed. These questions relate to the thoughts and feelings you may have experienced during the activity. There are *no right or wrong answers*. Think about how you felt during the activity and answer the questions using the rating scale below. Circle the number that best matches your experience from the options to the right of each question. *Please note the scale changes for questions 14, 15, and 16.*

		Not at all		Partly			Very much	
1.	I feel just the right amount of challenge.	1	2	3	4	5	6	7
2.	My thoughts/activities run fluidly and smoothly.	1	2	3	4	5	6	7
3.	I do not notice time passing.	1	2	3	4	5	6	7
4.	I have no difficulty concentrating.	1	2	3	4	5	6	7
5.	My mind is completely clear.	1	2	3	4	5	6	7
6.	I am totally absorbed in what I am doing.	1	2	3	4	5	6	7
7.	The right thoughts/movements occur of their own accord.	1	2	3	4	5	6	7
8.	I know what I have to do each step of the way.	1	2	3	4	5	6	7
9.	I feel that I have everything under control.	1	2	3	4	5	6	7
10.	I am completely lost in thought.	1	2	3	4	5	6	7
11.	Something important to me is at stake here.	1	2	3	4	5	6	7
12.	I must not make any mistakes here.	1	2	3	4	5	6	7
13.	I am worried about failing.	1	2	3	4	5	6	7

		Easy					Difficult			
14.	Compared to all other activities which I take part in, this one is...	1	2	3	4	5	6	7	8	9
		Low					High			
15.	I think that my competence in this area is...	1	2	3	4	5	6	7	8	9
		Too low			Just right			Too high		
16.	For me personally, the current demands are...	1	2	3	4	5	6	7	8	9

APPENDIX G

EXPERIENCE SAMPLING FORM

Instructions: As you complete this form, please think only about the activity you were completing *immediately prior to now*.

What was the **MAIN thing** you were doing? _____

What **other things** were you doing? _____

What were you **thinking** about? _____

Who were you doing the main activity **with?** (*circle all that apply*)

Alone Partner Small group Whole class Teacher Other

Indicate the part(s) of the activity you were able to **choose**. (*circle all that apply*)

- | | | |
|---------------------------------|-----------------------------------|---------------|
| a. how much time you could take | b. what materials to use | c. the topic |
| d. who you could work with | e. doing this particular activity | f. other |
| g. how you did it | h. defining the problem | i. no choices |

Will your work on this particular activity be **graded?** (*circle one*)

Yes No Unsure

If you had a choice, what **would** you be doing? _____

During the previous activity:

	<i>Not at all</i>			<i>Somewhat</i>			<i>Quite</i>		<i>Very</i>	
How well were you concentrating?	0	1	2	3	4	5	6	7	8	9
Was it hard to concentrate?	0	1	2	3	4	5	6	7	8	9
How self-conscious were you?	0	1	2	3	4	5	6	7	8	9
Did you feel good about yourself?	0	1	2	3	4	5	6	7	8	9
Were you in control of the situation?	0	1	2	3	4	5	6	7	8	9
Were you living up to your own expectations?	0	1	2	3	4	5	6	7	8	9
Were you living up to expectations of others?	0	1	2	3	4	5	6	7	8	9

Describe your mood during the previous activity.

	<i>Not at all</i>			<i>Some</i>			<i>Very</i>
Alert	0	1	2	3	4	5	6
Happy	0	1	2	3	4	5	6
Irritable	0	1	2	3	4	5	6
Strong	0	1	2	3	4	5	6
Active	0	1	2	3	4	5	6
Lonely	0	1	2	3	4	5	6
Ashamed	0	1	2	3	4	5	6
Involved	0	1	2	3	4	5	6
Excited	0	1	2	3	4	5	6
Closed	0	1	2	3	4	5	6
Clear	0	1	2	3	4	5	6
Tense	0	1	2	3	4	5	6
Competitive	0	1	2	3	4	5	6

Indicate how you felt about the previous activity:

	<i>low</i>									<i>high</i>
Challenges of the activity	0	1	2	3	4	5	6	7	8	9
Your skills in the activity	0	1	2	3	4	5	6	7	8	9
		<i>not at all</i>								<i>very much</i>
Was this activity important to you?	0	1	2	3	4	5	6	7	8	9
Was this activity important to others?	0	1	2	3	4	5	6	7	8	9
Were you succeeding at what you were doing?	0	1	2	3	4	5	6	7	8	9
Do you wish you had been doing something else?	0	1	2	3	4	5	6	7	8	9
Were you satisfied with how you were doing?	0	1	2	3	4	5	6	7	8	9
How important was this activity in relation to your overall goals?	0	1	2	3	4	5	6	7	8	9

Comments, thoughts, etc. _____

APPENDIX H
INTERVIEW PROTOCOL

Participant Name: _____

Date: _____

Interviewer: _____

Interview Steps:

1. Greet student
2. Develop rapport
3. Conduct interview
4. Thank participant

Greetings:

“Hi! My name is [NAME] and I am so glad to have the chance to talk to you today! I’m here to learn about you and some of the things that interest and motivate you. I am going to record our conversation, okay? All right, great!”

Questions for Rapport:

1. How is your week going so far?
2. Do you have any fun plans for the weekend?
3. That sounds great! Is there anything about me you would like to know before we start?

Initial Instructions:

1. I am going to ask you some questions today about reading and things that interest you. I want to learn about what motivates you, so some questions will be about your experiences in school and some will be about your experiences outside of school. Okay?
2. You are not being graded on your answers and they will not affect your class grade in any way. Do you have any questions before we begin?

[Start recording the interview]

Demographic Questions:

“We’re going to start with some very easy questions.”

1. What is your name?
2. What class are you in right now?

Interview Questions:

Part 1 – Reading

“Now I’m going to ask you some questions about reading. I want you to answer honestly and give me as much detail as you can, okay? Are you ready to begin?”

1. First, tell me how you feel about reading. What do you like about it and what do you not like about it?
 - a. What do you feel are your strengths as a reader?
 - b. What do you feel are your weaknesses as a reader?
2. Do you ever read outside of class for fun?
 - a. **YES** → What do you like to read about?
 - b. **NO** → Why not?
3. Tell me about a particular thing you have read, either for fun or for school, that you really enjoyed reading.
 - a. What did you like about it?
 - b. What did you not like about it?
4. How do you think your reading skills have changed this year, if at all?
 - a. **IF CHANGED** → What have your teachers done to help facilitate this growth?

Part 2 – Interest & motivation

“I am now going to ask you some questions about things that interest and motivate you in your free time and at school. Again, answer honestly and give me as much detail as you can. Are you ready?”

5. What really motivates you? (*can be either in school or leisure*)
 - a. What doesn’t motivate you?
 - b. How do these things align with what you do in school?
6. What interests you?
 - a. What doesn’t interest you?
 - b. How do you get to incorporate your interests in school?
7. Are you motivated to perform well in school?
 - a. Why/why not?
8. In general, what are some things you have to do even though you're not motivated to do them?
 - a. What do you do when you have to do one of these things?
9. What types of things keep you engaged during class?
 - a. **IF NOTHING** → What could your teachers do to keep you engaged?

10. Do you ever get so focused on something that you lose track of time? For example, playing sports, reading a book, solving a puzzle, etc.
- a. Why do you think that activity keeps you engaged for so long?
 - b. Have you ever felt this way during an activity at school and if so, what was the activity?
 - c. When you experience this, does it make you want to do that activity again?
11. Is there anything else you would like to say about anything we've talked about?

Thank You:

“Those are all the questions I have for you today. Thank you so much for your great responses! I really appreciate your time.”

APPENDIX I

RESEARCH QUESTIONS AND DATA SOURCES

Research Questions	Data Sources
RQ1: Skill/challenge balance & flow	<ul style="list-style-type: none"> • Flow Short Scale
RQ1(a): Self-efficacy alignment	<ul style="list-style-type: none"> • Reading Self-Efficacy instrument • Gates-MacGinitie Reading Test
RQ2: Reading activity & flow	<ul style="list-style-type: none"> • Activity reports • Flow Short Scale
RQ3: Disability, reading motivation, & flow	<ul style="list-style-type: none"> • Gates-MacGinitie Reading Test • Student demographic survey • Reading Motivation Questionnaire • Experience sampling form • Flow Short Scale
RQ4: Describing flow experiences	<ul style="list-style-type: none"> • Experience sampling form • Student interviews