ABSTRACT

GETTING GRITTY WITH IT: AN ANALYSIS OF GRIT AND READING STAMINA IN FIRST GRADE STUDENTS

by Jaimie N. DeMaiolo

The results of this study examine the relationship between first grade students' relative level of personal grit, their ability to persevere in the face of adversity, and reading stamina's impact on reading achievement through the implementation of the Daily Five, an evidence-based literacy intervention that simultaneously interweaves behavioral management components. With the knowledge gained through this seminal study, practitioners can better understand a potential predictive factor for intervention effectiveness in the areas of early literacy, stamina, and grit.

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A Thesis

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by

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Introduction

Reading is one of the basic and fundamental skills necessary for an individual's development as they progress from childhood into adulthood. As the child develops, reading progresses from phonemic awareness and sound-symbol relationships to increasingly involve the motivated and fluent coordination of word recognition and comprehension (Pressley & Allington, 2015). It is a lifelong skill that can advance and progress an individual to different ability levels and skill sets in their future. Reading can be defined as the "process of construction of meaning from written texts and a complex skill requiring the coordination of a number of interrelated sources of information and is the translation and decoding of written words into meaningful language" (Anderson, 1985, p.1). In order for a child to be successful as a reader, they must untangle our English code or language and transform it into print so that they can decode fluently while at the same time grasping the meaning behind vocabulary, comprehending the text, and understanding elements of fiction and nonfiction. It is an amazing task that many children do not seem to be able to easily acquire. There are many children who struggle or are atrisk for failing in the area of reading. To be sure, it is estimated that about 20 million children have difficulties learning to read (Lyon, 2003). The good news is that these same researchers also found that 90 to 95 percent of children who struggle with reading can overcome their difficulties if they receive appropriate intervention services. Given such a substantial task to accomplish, it is important to determine what avenues successful readers should take toward refining and developing their skills. Others have successfully discovered that work on such skills as phonemic segmentation, vocabulary, repeated readings, and select work on comprehension skills can be beneficial. Another promising area that we choose to pursue is that of a beginning reader's level of personal resilience or "grit" and how it may interact with specific techniques having to do with stamina building in the approach to reading called "The Daily Five," which is described by its authors as a scientifically based reading curriculum (Boushey & Moser, 2014).

Statement of the Problem

As we search for ways to narrow the gap and increase productivity for all of our elementary students in the area of reading, it is important to explore all routes that may lead to greater success. One area that is proposed in this paper is that of an individual's relative level of grit. Grit can be briefly defined as an individual's ability to persevere in the face of adversity or uncertainty. The logic behind the association between reading and grit is that if a child shows greater perseverance and habits such as working on difficult reading tasks without giving up, they will also show a greater tendency toward stamina for reading. In turn, it is expected that if they have greater stamina for reading, they will show a positive or accelerated learning curve in that subject matter. If so, focusing upon children's level of grit could be important for children who struggle as they may be better able to "catch up" to peers in an accelerated fashion. However, teachers and researchers are currently at a loss for resources in this area because there is a notable lack of research linking grit with reading and reading stamina. Moreover, there is a paucity of inquiry regarding those children who could be positioned best for benefiting from such intervention—those in Kindergarten and First grade. Therefore, it is critical that seminal work such as this be undertaken to investigate areas not been raised in previous research. As such, this study seeks to provide an initial inquiry into the association between reading, stamina, and grit.

Purpose of the Study

The overall purpose of this seminal study is to examine if a first grade child's relative level of personal grit and stamina, as engendered directly through the Daily Five approach, will have a significant and positive effect on their reading achievement. The intervention is designed to build behaviors of independence and stamina in children via the gradual release of responsibility model of reading development advocated by Fisher and Frey (2012). While stamina is categorized as one of the most widely used words in current usage, its precise definition and explication within the reading, psychological, and pediatric literature is scarce. For certain, although there is a great deal of research on a related but very different concept such as sustained silent reading, virtually no referenced work in reading is available except a few that mention but do not offer citations about the concept (Fisher and Frey, 2012). Perhaps because the word and concept of stamina is so well used and its target is so precise, stamina occupies a central part of the Daily Five curricula and approach. Children are told that it is important that they are able to sit and read for longer periods of time and are given charts to help them measure their accomplishments and set goals. As such, reading stamina is a novel concept that is important to understand as young children build skills for them to become better readers in the future. Reading stamina is defined by Boushey and Moser (2014) as "the ability to focus and read independently for a developmentally appropriate period of time without being distracted or distracting others" (p. 12). In the Daily Five approach, the development of reading stamina is thought to allow the reader to become more motivated, accurate, and proficient as they continue to practice reading. Reading stamina is also referred to by Boushey & Moser (2014) as "the energy needed to fuel a child's reading habits" (p.12). For some individuals, reading may be too difficult or frustrating, resulting in little pleasure or enjoyment. However, setting goals toward building a young student's ability to read for increased lengths of time will enable them to become stronger readers, reducing frustration and increasing intrinsic motivation to read. It could also have implications in other areas such as attention training, ability to focus on math problems, sustained writing exercises, and direction-following. Boushey and Moser (2006) have created a reading intervention for students, the Daily Five, which helps children understand and master four of the key components of reading: comprehension, accuracy, fluency, and expanding vocabulary. These goals approximate those of the four of the "Big Five" reading areas identified through research (Boushey and Moser, 2006), including fluency, vocabulary, and comprehension. The others, phonemic awareness and phonics, are supported through the Daily Five. As such, it reflects scientifically based research practice. The goals of the Daily Five are posted on the classroom's walls as a visual reminder of the instructions for the students and tied to their behavioral management system. This approach provides teachers with the ability to assess, instruct, and monitor the student's progress.

Definition of Terms

The following terms are defined in order to provide the central ideas and concepts relative to the research study:

- Grit- the child's perseverance and passion for long-term goals entailing working strenuously toward challenges, maintaining effort and interest over a length of time despite failure, adversity, and plateaus in progress (Duckworth, Peterson, Matthews, & Kelley, 2007).
- 2.) **Reading stamina** In an extensive review of reading research that involves stamina conducted from 1991-2015, several results were first obtained. However, of the articles

reviewed from the extensive list, none were found to offer a truly operational definition or "measure" of reading stamina. Most authors mention it in the course of their research but do not go on to explicate how to measure it or provide citations for it. For instance, there are many citations that have to do with sustained silent reading and the necessity of increasing student's endurance, but then offer no means by which to measure the stamina concept other than reading for a set amount of time (such as for 30 minutes). Even within the literature for the Daily Five offered by Boushey & Mosier (2015) and others using their methods, stamina is frequently mentioned as a familiar and key concept but not specifically defined or operationalized. It is as if the community of researchers and teachers utilizing this concept mention it as though it is a fully understood and accepted domain.

Research Questions/Hypotheses

For the purpose of this study, the following questions were addressed:

- 1.) Does a student's level of grit directly correlate with more growth in their measured reading stamina?
- 2.) Does a student's score on the DESSA Mini correspond to their level of grit?
- 3.) Are scores on the DESSA Mini and stamina correlated?
- 4.) Is there significant growth of the student's measured reading stamina over the course of the study period?
- 5.) Is there significant growth of the student's level of grit over the course of the study period?
- 6.) Is there significant growth of the student's strengths according to DESSA Mini scores over the course of the study period?

As part of this study, the investigation includes six research hypotheses:

- 1. A higher level of grit corresponds to a significant increase in reading stamina.
- 2. A student's score on the DESSA Mini corresponds with their level of grit.
- 3. A student's scores on the DESSA Mini and reading stamina are correlated.
- 4. There will be significant growth in the student's measured reading stamina over the course of the study period.
- 5. There will be significant growth in levels of grit over the course of the study period.
- 6. There will be significant growth of the student's strengths according to DESSA Mini scores over the length of the study period.

Literature Review

Grit

Grit is defined as the tendency to sustain interest in an effort toward very long-term goals (Duckworth et. al., 2007). Since its introduction by Angela Duckworth in 2007, grit has gained wide recognition and research. It has also been the subject of a highly accessed and cited TED talk. According to Duckworth (2013), "Grit is passion and perseverance for very long-term goals. Grit is having stamina. Grit is sticking with your future...grit is living life like it's a marathon, not a sprint." Reading tasks may be extremely difficult for some students for various reasons. Levels of grit in children will determine if the child is willing to continue persevering regardless of the challenges and struggles provided from reading. Studies show that kids who

demonstrate grit persist at hard tasks and outperform their competitors (Duckworth et. al., 2007). Grit can be identified in the classroom when the student is experiencing frustrations, setbacks, bad grades, or missed assignments, they continue persisting despite setbacks, disappointments, and failures, but there is a resilience and deepening consistent interest developing over time (Duckworth, 2015).

As an extension of the initial work done by Duckworth and her colleagues about grit, a research consortium called the Character Lab was assembled in 2013, with the goal of bringing teachers, researchers, and school personnel together to more readily measure and use grit as a means by which to accentuate Positive Behavioral Interventions and Support (PBIS) programs in the schools. Through this important work, grit is a critical strength of most people who are successful and is complex in that it entails other skills and mindsets such as optimism, purpose, growth mindset, bravery, and self-control (Character Lab, 2015). Teachers and educators are now provided with several tools by which they are able to observe and evaluate grit in numerous ways. Students demonstrating grit are those seen as finishing what they began, staying committed to their goals, working hard even after they experience failure or adversity or when they feel like quitting, and sticking with a project or activity for more than a few weeks (Character Lab, 2015).

According to Duckworth (2014), "it's never too early to start thinking about, you know, how do we teach kids how to set goals, how to stick with goals, how to stay persistent in the face of temptation and distraction and adversity? And the idea is that if you can put those skills in place early on, that's just as important as teaching a child how to, you know, read, how to write, how to count. We read lots and lots of articles. We think about research designs, but teachers have a different kind of knowledge..."

Grit and self-control, voluntary regulation of behavioral, emotional, and attentional impulses in the presence of momentarily gratifying temptations or diversions, are two traits found to be predictors of achievement (Duckworth & Seligman, 2005). Many economists consider grit and self-control to be exemplars of "non-cognitive" dimensions of human capital, terminology which persists as a useful moniker for traits other than cognitive ability despite its obvious inadequacies (Almlund et al., 2011; Borghans, Duckworth, Heckman, & Bas Ter Weel, 2008; Duckworth, 2009). Many educators prefer the umbrella term "social and emotional learning." In addition to being a facet of the Big Five conscientiousness, it has also been conceptualized as social and emotional competency.

Importance of grit. The present study seeks to find more information about individuals differing dramatically in their stamina for long-term goals, or grit. Gritty individuals are...distinguished by their propensity to maintain effort and interest over years despite failure, adversity, and plateaus in progress (Duckworth et. al., 2007). The study seeks to find more information about first grade students learning to read and their ability to continue reading for a relatively long period of time despite the level of difficulty or their frustration.

It's been said, the point of life is to love, to be loved, and to be useful. I think grit is very important, at least for that third thing, right? To be useful, to be useful to our fellow human beings, and kids have a natural instinct. When you give a six year old a task to do, "Can you please clear the table?" and they successfully do that and you praise them for doing that, it makes them feel terrific. And I think it makes them actually feel more terrific than an ice cream cone. And as we get older and older, I think the importance of being useful becomes more and more salient to us. So I think for kids, the idea of being gritty enough to learn something, to master it, so that you can be good at it, that you can be useful, is very important, no matter what it is that in fact you choose to do. (Duckworth, 2014).

Duckworth and colleagues conducted a series of studies which found that people with higher levels of grit attained higher levels of education, earned higher GPAs, and were more likely to graduate from high school (Duckworth et. al., 2007). Grit contributes to the quantity and quality of effort individuals invest in their goals. Based upon these findings, it is crucial to continue further research and gather information as to how we can design a curriculum that will effectively build grit in students from an early age.

Duckworth's research has established the predictive power of grit and self-control for objectively measured success outcomes. Grit predicts surviving the arduous first summer of training at West Point and reaching the final rounds of the National Spelling Bee (Duckworth et al., 2007). In addition, it has also been found to be a pivotal predictor of retention and performance among novice teachers (Duckworth, Quinn, & Seligman, 2009, Robertson-Kraft & Duckworth, 2014), performance of sales agents, retention in the U.S. Special Forces, and graduation from Chicago public high schools (Eskreis-Winkler et al., 2014). These studies have been able to predict such occurrences over and beyond domain-relevant talent measures such as IQ, SAT or standardized achievement test scores, and physical fitness. In cross-sectional studies, grit correlates with lifetime educational attainment and, inversely, lifetime career changes and divorce (Duckworth et al., 2007; Eskreis-Winkler et al., 2014).

Grit and passion for long-term goals. A study conducted at the Duckworth Lab in the University of Pennsylvania found that deliberate practice mediated the prediction of final performance by the personality trait of grit, suggesting that perseverance and passion for long-term goals enables spellers to persist with practice activities that are less intrinsically rewarding—but more effective—than other types of preparation (Duckworth et. al., 2010). Deliberate practice is the sort of practice experts do to improve; it involves effortful striving toward a very specific goal whose level of difficulty exceeds current skill and demands feedback, most often, coaching (Duckworth et. al., 2010). In the National Spelling Bee, for example, gritty finalists log more hours of deliberate practice, and this time uniquely predicts final ranking whereas less effortful and more pleasurable forms of practice do not (Duckworth et. al., 2010). As mentioned above, grit is known as being a phenomenon of perseverance and passion for long-term goals. Grit has been shown to demonstrate incremental predictive validity of success measures beyond IQ and conscientiousness. According to a study by Angela Duckworth, the findings suggest that the achievement of difficult goals entails not only talent but also the sustained and focused application of talent over time (Duckworth et. al., 2007).

Building and strengthening grit. Grit is a valuable and important concept to introduce to students in the classroom. There are several effective strategies recommended for educators to implement the establishment and strengthening of grit. Educators working with students reflecting on past achievements is an effective method of allowing students to evaluate their own grittiness by asking the student to reflect on a time when they were committed to something, even if it was hard, by prompting them with questions such as 'How did you feel when you stuck with it? What was the outcome?' (Character Lab, 2015).

Amy Lyon, a fifth grade teacher who has created a curriculum based on Duckworth's ideas about grit, uses direct instruction as a way to increase grit (Duckworth, 2014). The

curriculum entails highlighting students' level of stamina in order to make them consciously aware of their level of grit. Highlighting the gritty side of success is important because when we see prominent athletes or musicians, we do not see the hidden hours of gritty and grueling practice it took to get there (Duckworth, 2015). Teachers and educators should encourage deliberate practice and teach the students that practicing a skill should be hard; productive practice should focus on weaknesses, feel difficult, be repetitive, and include immediate information feedback in order for the student to grow (Duckworth, 2015).

Modeling grit by thinking out loud teaches a valuable lesson to students that grit is a part of everyday life (Character Lab, 2015). Lastly, educators need to help the students quit activities responsibly. It is acceptable for students to quit activities, however, they may need help choosing the proper time to quit—after they have been thoughtful and reflective—not after a bad day or during the middle of the committed activity (Duckworth, 2015).

Grit and stamina. Grit is important to study concurrently with reading stamina because it contributes to the quality and quantity of effort that individuals invest in their goals. The gritty individual approaches achievement as a marathon; his or her advantage is stamina (Duckworth et. al., 2007). Grit is really about the student's stamina and how consistently they are working in a certain direction and how hard they are working (Duckworth, 2013). Grit measures stamina and perseverance in the face of adversity. Grit overlaps with achievement aspects of conscientiousness, but differs in its emphasis on long-term stamina rather than short-term intensity (Duckworth et. al., 2007). According to Duckworth et. al. (2007), as educators and parents, we should encourage children to work not only with intensity but also with stamina, and prepare youth to anticipate failures and misfortunes by pointing out that excellence in any discipline requires years and years of time on task.

Creating an Independent Reader

The goal of reading is to extract meaning from text, and this depends upon decoding, fluency, and language-comprehension skills (Hulme & Snowling, 2011). In essence, it requires that a child becomes a fluent comprehender (Wolf, 2014). A frequent benchmark used by many educators and state education agencies is the expectation that students clearly develop the foundation of reading skills and abilities by the time they reach third grade. Foundational instruction for children learning to read in the elementary school often focuses on basic skill development and beginning comprehension skills. During upper elementary instruction, children must learn to negotiate the multiple demands of higher-level comprehension involving working memory and other advanced cognitive processes (Kintsch, 2012). Reading skills taught in such classes prepare the students to read by allowing them to obtain more information about the content area. In addition, these skills are used to help the child to become a critical thinker and problem solver capable of later, deep comprehension (Kintsch, 2012).

Gail Boushey and Joan Moser have created a widely-used and successful reading intervention for students, the Daily Five, which helps children understand and master the four key components of reading: comprehension, accuracy, fluency, and expanding vocabulary. The goals of the Daily Five are posted on the classroom's walls as a visual reminder of the instructions for the students. The CAFÉ system provides teachers with the ability to assess, instruct, and monitor the student's progress. These same authors further developed the Daily Five independent word system and CAFÉ (comprehension, accuracy, fluency, and expanding vocabulary) assessment system to help elementary level students understand and master different strategies used by successful readers within that age group. This intervention was developed by integrating proven practices based upon contemporary reading research as well as through observations of instructional mentors and the need for intentional focused instruction for small groups and individuals.

The Daily Five credited by Boushey & Moser (2014) as arising and developing out of their experience with Richard Allington's research on successful readers, Regie Routman's goal setting in reading, and other classroom models for connecting assessment with daily workshops. In addition to Richard Allington and Regie Routman, the foundational principles, routines, and concepts of the Daily Five were inspired by the work of such authors as Margaret Mooney, Nancie Atwell, Michael Pressley, Ken Wesson, David Pearson, Emmett Betts, Michael Grinder, Peter Johnston, and Robert Marzano.

The intervention is a system implemented with the students daily. The program includes lessons designed for helping students monitor themselves, set goals, post goals for the classroom to see, developing small groups of students with similar goals, and targeting whole-class instruction based on the student's needs (Boushey & Moser, 2014). The Daily Five is a unique intervention because of the approach of teaching the students to be independent. The program emphasizes that all children are different and have different needs. The intervention is easily adaptable to different school districts in order to meet state standards and the need of the child.

One way to teach students to be independent learners is to gradually transfer the responsibility for learning to our students (Fisher & Frey, 2008). In the Daily Five, students work on gradually building stamina until they are successful at working independently on reading.

The Daily Five program also stresses the importance of creating a new and positive environment in the classroom where students are independent and responsible for their own roles. In this way, the program is not only a literacy approach, but also a classroom management system designed to enhance reading skills as well. Clear expectations and learning goals reduce student misbehavior and help create a positive learning environment (Marzano & Marzano, 2003). The intervention is designed to prevent teachers from rushing around the room helping all of the different students struggling with individual problems. Instead of teachers being overwhelmed with questions, students are taught daily routines and procedures that create independent reading behaviors that gradually become habits for the students. The use of I-charts in the Daily Five allows students to develop expectations in the classroom by creating a list of behaviors, modeling the behaviors, and reviewing the behaviors daily until mastery is achieved (Boushey & Moser, 2006). The goal of the intervention is for students to internalize the positive behaviors associated with reading and writing. Self-monitoring is also a crucial component of the intervention because the children are learning to become more independent and solve problems on their own (Boushey & Moser, 2014). The Daily Five reading intervention teaches the students five skills necessary for them to become better readers and writers: read to yourself, read to someone, work on writing, listen to reading, and spelling/word work.

Read to yourself. Previous research indicates that reading to yourself is an effective way to become a better reader. Practicing reading every day with books of the individual's choice at the developmentally appropriate reading level is beneficial for the child to develop the skills necessary to become a good reader (Allington & Johnston, 2002). Allington (2012) emphasizes the importance of self-selected text that a student can read with 98% accuracy, something they understand, and is personally meaningful. In the Daily Five, the students select books that follow the "I-Pick" guidelines where students are reading good-fit books of their choice that interest them. The read to yourself aspect of the Daily Five provides the student with the opportunity to become a better reader because they are able to work on these skills by practicing repeated

reading. Close reading, an instructional routine in which students critically examine a text especially through repeated readings, is used to build the necessary habits of readers when they engage with a complex piece of text including building stamina and persistence when confronted by a reading that is not easily consumed (Fisher & Frey, 2016). Reading to yourself serves as the foundation for creating independent readers and writers because it is the primary step in implementing the intervention. Pearson and Gallagher (1983) found that the gradual release of responsibility model is significant in affecting a child's ability to read to themselves because it introduces them to continuous and repetitive practicing and develops muscle memory.

The approach used via the Daily Five is for teaching strategies such as stamina by modeling for the whole class, guiding the students in its practice in small groups and pairs and providing large blocks of time for students to read independently and practice using and applying the strategy (Boushey & Moser, 2006). Skilled teachers use instructional scaffolds such as posing questions to check for understanding during small-group guided instruction (Frey & Fisher, 2010). All instruction is scaffolded and geared toward children using these strategies independently and applying them if and when needed (Boushey & Moser, 2006).

Read to self begins the lesson by introducing the idea that there are three ways to read a book: read and talk about the pictures, read the words, or retell a previously read book. Reading the pictures in the book is a helpful alternative to building the foundation of reading (Boushey & Moser, 2006). By reading pictures, the students will be able to follow along with the story and gradually connect their understanding of meaning from the pictures with the words on the page.

Reading Stamina

Reading stamina is the ability to focus and read independently for progressively longer periods of time without being distracted or without distracting others (Boushey & Moser, 2014). Stamina in reading means being able to read something for a period of time, building strength and endurance. Establishing a foundation for the child's reading ability is effective for children with little to no stamina or the lack of ability to read. Providing manageable amounts of work that gradually increase in time and resistance has a significant impact on children being able to read for longer periods of time as their training progresses (Boushey & Moser, 2014).

Teaching students to build stamina during independent work is beneficial for teachers as they individualize instruction for each student and for the student's own learning as they become more independent and show greater self-control. Teachers must first establish a baseline for how long the class is able to read independently. When teachers actively engage the body and brain in a lesson, they provide implicit learning experiences for students (Jenson, 2000). In addition, brain research shows the age of the child indicates the number of minutes they can focus on explicit instruction. Further research has found that children beginning to read around the ages 5-6 are generally able to read silently for one minute in a kindergarten classroom (Boushey & Moser, 2014). Classrooms using the Daily Five have instruction designed in a way that lessons are brief, focused, and chunked in order to provide the necessary brain and body breaks needed by children. After one week of the implementation of the Daily Five and focused instruction, children had increased on-task independent reading time to ten minutes (Boushey & Moser, 2014). Teaching students to read independently for extended periods of time helps students to become actively engaged in reading. Building stamina requires the students to understand classroom expectations and continuously practice reading and strategies that help them read more efficiently over time.

Practicing reading is the most efficient means of developing greater reading stamina and

thus, habituation to reading longer pieces of text. An increase in reading stamina will increase energy levels and perseverance during tasks that require strenuous reading, therefore, the reader will be able to obtain more information leading to greater success in school. Understanding the skills necessary to build an individual's reading stamina is important because a deficit in this area can create significant impairments on the student's academic performance. When an individual is unable to focus on and comprehend the reading, they may lose concentration from the passage and begin thinking about unrelated concepts. A common phenomenon during reading is daydreaming and thinking about other topics and occurrences in the individual's life as opposed to the provided instructional materials.

Motivation to Read. Reading also means developing and maintaining the motivation to read. This is an active process of constructing meaning from the text. Children should learn to appreciate the pleasures of reading in order to help them develop and maintain the motivation to read. According to Guthrie and Humenick (2004), a meta-analysis demonstrates a powerful impact of book choice on student motivation. Studies indicate that providing elementary level students with opportunities to make choices on various aspects of reading activities increases their motivation to participate (McLoyd, 1979; Reynolds & Symons, 2001).

Viewing reading as a social act, something that is shared with others, is a beneficial way to develop motivation for a student to read. Valuable opportunities for social interactions around independent read to self time are found in teacher-to-student and student-to-student discussions (Cole, 2003; Garan & DeVoogd, 2008), which can provide motivation, deeper understanding, and a sense of ownership for the reading experience (Reutzel, Jones, & Newman, 2010).

Teaching children that reading is a potential way of developing their knowledge base can be used for a variety of purposes including increasing their intrinsic motivation to learn and internalize new information. An individual with motivation to read will view reading as an opportunity to continue exploring their interests and learning more about the topics that they enjoy. Exposing an individual to different genres of literature will also allow the individual to become more comfortable with a variety of different styles of writing. Providing diverse reading materials provides the student with an opportunity to expand their cognitive flexibility (Boushey & Moser, 2014).

Motivation and Reading Achievement. Studies show that there is a significant positive relationship between motivation and reading achievement. A study done by Stutz, Schaffner, and Schiefele (2015) examined second and third grade elementary students' reading motivation and reading comprehension The study found that intrinsic reading motivation affected comprehension through reading amount (Stutz et. al., 2015). Reading amount is directly associated with reading stamina because if students are able to sit and actively read for longer amounts of time, they will also have a higher reading amount. Reading amount was assumed to mediate the relation between reading motivation and reading comprehension (Stutz et. al., 2015). Results indicated that intrinsic reading motivation (i.e. involvement) contributes to reading comprehension via the amount of leisure-time reading (Stutz et. al., 2015). Previous literature also shows that evidence supports the assumption that both intrinsic and extrinsic reading motivation are related to reading amount, and that reading amount in turn contributes to reading competence (Schiefele, 2012).

A second study by Lee and Zentall (2015) confirmed that for all students reading motivation predicted later reading achievement—mediated by the amount of reading. The study assessed reading motivation from elementary through middle school levels and the relationship among earlier reading failure, reading motivation, and reading amount (behavior), and later

achievement for students with reading disabilities and comparison groups of students with Attention Deficit Hyperactivity Disorder and students without disabilities (Lee & Zenall, 2015). A moderating variable proposed in the study was prior failure, the learning and emotional theory of motivation suggests that prior failure can moderate motivation (Lee & Zenall, 2015). The current study seeks to find if gritty individuals, those who are able to persevere despite failure, will have higher levels of reading stamina. Higher levels of reading stamina will increase the reading amount, therefore students will be more likely motivated to continue reading which will lead them to higher reading achievement.

A third study by Schaffner & Shiefele (2016) examined the role of reading motivation as a potential determinant of losses or gains in reading competence over summer vacation on third grade elementary students. Results of the study indicated that intrinsic reading motivation before summer vacation contributed positively to both word and sentence comprehension after summer vacation when controlling for comprehension performance before summer vacation; these effects were mediated by reading amount (Schaffner & Shiefele, 2016).

Methodology

Research Design

The study is primarily correlational in nature with a single group of students (n=18). Correlational research refers to the systematic investigation or statistical study of relationships among two or more variables, without necessarily determining cause and effect. The current study seeks to establish if a relationship exists between (1) a student's level of grit and their growth in their measured reading stamina; (2) a student's score on the DESSA-Mini and their level of grit. The study also includes a pretest, mid-test, posttest design in order to measure subjects before, midway, and after the study period during the 2015-2016 school year. The design is used to determine if there is significant growth over time in (3) reading stamina; (4) levels of grit; and (5) students' strengths according to DESSA Mini scores.

Subjects

The subjects involved in the study were first grade students, ages 6-7, which enrolled in a first grade classroom for the 2015-2016 academic year. The study occurred in a first grade classroom at a rural elementary school. Approximately 18 students were included in the study. Classroom demographics were provided by the teacher. The subjects were selected via convenience sampling because of Miami University's affiliation with the elementary school.

Materials

After each child's parents completed the informed consent form, the teacher completed a series of questionnaires (about each individual student) consisting of the modified Grit Scale for Children, DESSA Mini, and the Reading Stamina Chart.

Demographic Survey. A survey was administered in order to provide demographic information about the student's characteristics such as age, gender, retention history, and tier of intervention support in order to gain information about the classroom sample (see Appendix C).

Devereux Mini Student Strengths Assessment. The DESSA Mini is a brief measure of resilience, social-emotional competence, and school success consisting of 8-items about the strengths of the child. The DESSA Mini allows for universal screening, repeated assessment, and determination of need for instruction. The DESSA Mini was used as a comparison to the

modified Grit Scale for Children in order to support the validity and reliability of the modified Grit Scale and ensure that it is measuring what it intends to measure as a social and emotional learning scale in terms of perseverance, resiliency, and student strengths.

The DESSA Mini is an equivalent social-emotional rating scale to the Grit Scale for Children. The DESSA Mini was used to validate the reliability and validity of the modified Grit Scale for Children. Findings suggested that the DESSA Mini is a viable tool for universal screening of social-emotional competencies related to resilience (Naglieri, Lebuffe, & Shapiro, 2011). The median alpha reliability coefficients across grades for the DESSA Mini ranged from a low of .915 (Mini 1) to a high of .924 (Mini 3). These findings suggested that DESSA Mini has excellent reliability.

MU Modified Grit Scale for Children, Teacher's Version (MUM-GRITT). The modified scale consists of eight items asking the teacher to respond to the items based on their opinions about the student (i.e. very much like the student, mostly like the student, somewhat like the student, not much like the student, and not like the student at all). The original scale is a self-report survey demonstrating strong reliability and validity, (r = .84) (Duckworth & Quinn, 2009). The modified scale has been adjusted as a teacher-reported survey. Previous research was conducted to validate an informant report version of the brief form. Informant versions of the scale were identical to the self-report versions with the exception that all first-person pronouns were replaced with gender-specific third-person pronouns (Duckworth & Quinn, 2009). Findings suggest that informants can reliably assess grit. Internal consistency estimates for family members, peers, and self-report were $\alpha = .84$, .83, and .83, respectively (Duckworth & Quinn, 2009). The correlations between the self-report version of the Grit-S and scores on the informant versions completed by either family members or peers were medium-to-large, r = .45, p < .001 and r = .47, p < .001, respectively (Duckworth & Quinn, 2009).

The MUM-GRITT was administered as a pretest, mid-test, and posttest during the study period to measure the levels of grit for each individual child. It is now well-established that traits change across the life course; while there is enough stability to traits to sensibly describe one individual as grittier than another, it is also true that children and adults change their habitual patterns of interacting with the world as they accumulate additional life experience (Roberts & Mroczek, 2008) (see Appendix A).

Reading Stamina Chart. A Reading Stamina Chart was administered as a pretest, midtest, and posttest during the study period to measure the student's individual level of reading stamina. The chart collected pretest, mid-test, and posttest data about each child's level of reading stamina during read to self time by measuring the amount of time that the child is able to read consistently without being distracted or by distracting others (see Appendix B).

Procedures

There were several procedures in order to properly implement the research study. Research participants entered the research study of their free will and understanding of the nature of the study and any possible dangers as a result of participation. The study participants were assured of confidentiality and the researcher's promise to not disclose participants' identities or information that could lead to the discovery of those identities. In order to protect the student's identity, the teacher created an anonymous codename for each of the first grade students. The Family Educational Rights and Privacy Act of 1974 protects the privacy of the educational records of students. For the purpose of this study, the researcher only used the teacher-created anonymous code name. Before the implementation of the study, the experimenter reviewed specific details of the study with the principal and teacher at the elementary school. In order to conduct the research, approval was provided by the principal of the elementary school in order to gain permission to begin the study on first grade students. After receiving approval from the principal, a teacher trained in using the Daily Five reading intervention gave consent to conduct the study on the classroom of children. Due to the nature of this research study, parental consent was also provided in order to conduct the research. IRB approved parent consent forms were provided to the teacher to send home with the students. The students were given two weeks to return signed consent forms to the teacher before the study began.

The modified Grit Scale for Children, Reading Stamina Chart, and Devereux Student Strengths Assessment (DESSA Mini) was administered to the teacher at the beginning of the study period, during the Daily Five reading intervention. The teacher completed the pretest, midtest, posttest scales in addition to providing demographic information. Students underwent twelve thirty minute instructional sessions over the course the year as part of their regular classroom instruction.

The first step in implementing the research study was administering pretest assessments measuring the child's level of grit by administering the modified Grit Scale for Children. The Reading Stamina Chart was also administered as a pretest and recorded by the teacher in order to measure individual student's level of reading stamina. Due to the large size of the classroom, volunteers helped to assist the teacher in recording individual student reading stamina. First grade students were divided into small groups consisting of five students per volunteer/teacher during the read to self activity to ensure accuracy of reading stamina. The teachers and volunteers collected reading stamina data on consistent days of the week from 10:00am to 10:30am, as that is when the teacher implements the read to self lesson. Midway through the study period, the teacher completed the DESSA Mini and MUM-GRITT scales. After the course of the study period, posttest measures were administered to the teacher. The posttests consisted of the modified MUM-GRITT, DESSA Mini, and the Reading Stamina Chart in order to measure whether or not a change occurred over the course of the study period.

Data Analysis

The data was analyzed using the statistical tool of SPSS. A Spearman Rank-Order Correlation was conducted in order to analyze the data. The researcher examined the relationship or association between (1) higher levels of grit leading to an increase of growth in reading stamina; (2) the student's score on the DESSA Mini and their level of grit; (3) student's score on DESSA Mini and reading stamina. Spearman Rank-Order Correlation is a non-parametric measure used to analyze atypically distributed data. The statistical measurements are obtained from the same individual students indicating a linear relationship between the previously mentioned variables. Analyzing data via a correlation is important to examine whether or not the data is statistically significant. Due to the small sample size and seminal nature of this research, corresponding nonparametric procedures such as the Spearman Rank-Order Correlation were used.

In order to gain further insight to the data, a Friedman's Two-Way analysis of variance was conducted in order to determine if there was a significant change in reading stamina over the course of the study period. The analyses measures change over time by administering repeated measures. The study seeks to determine if over the course of the study period there was significant growth in (3) the student's measured reading stamina; (4) the student's level of grit; (5) the students' strengths according to DESSA Mini scores. The final analysis, Wilcoxon Signed-Rank test was conducted to determine if (6) there was a significant difference between DESSA Mini scores over the course of the study period.

Results

Six analyses were conducted to investigate the relationship between a student's level of grit and growth in reading stamina. Tests of normality (skew, kurtosis, and the Shapiro Wilk test) all indicated that the data did not approximate a normal distribution. As such, because of this and the small sample size used for this study, it was decided to use nonparametric measures to analyze the data.

A Spearman rank order correlation was performed and indicated that the relationship between grit and reading stamina was not significant ($r_s = .497$, n = 15, p = .305).

A different analysis was conducted to investigate the relationship or correlation between a student's score on the DESSA Mini and grit. The Spearman rank order correlation indicated that the relationship between the DESSA Mini and grit was significant. The relationship between the DESSA Mini and grit indicated a strong positive correlation (r_s =.837, n = 15, p<.05).

An analysis was conducted to investigate the relationship between the DESSA Mini and reading stamina. The Spearman rank order correlation indicated that the relationship between the DESSA Mini and reading stamina was not significant (r_s =.410, n = 15, p=.146).

	Grit:	Grit:	Grit:	DESSA:	DESSA:	Stamina:	Stamina:	Stamina:	Mean	SD
	9/2/2015	1/8/2016	5/9/2016	1/8/16	5/9/2016	9/2/15	1/8/2016	5/9/2016		
Grit: 9/2/2015	1.000								3.09	1.28
Grit: 1/8/2016	.789	1.000							3.51	1.22
Grit: 5/9/2016	.798	.618	1.000						3.52	1.14
DESSA: 1/8/16	.688	.845	.472	1.000					54.64	10.15
DESSA: 5/9/2016	.670	.607	.837	.583	1.000				54.57	10.32
Stamina: 9/2/15	.869	.729	.682	.708	.670	1.000			4.57	1.65
Stamina: 1/8/2016	.485	.161	.278	.222	.200	.430	1.000		12.21	1.05
Stamina: 5/9/2016	.507	.422	.284	.345	.410	.575	.337	1.000	28.64	2.87

Table 1 Correlation Matrix amongst Grit, DESSA Mini, and Stamina

Table 2

Descriptive Statistics for DESSA Mini

DESSA Mini Score	Mean	Std. Deviation	Ν
Winter	51.9412	11.00835	17
Spring	54.00	9.84547	16

An analysis was conducted to evaluate three samples of reading stamina over the course

of the study period. As the data collected differed significantly from a normal distribution, nonparametric procedures were again used. A Friedman's Two-Way analysis of variance was conducted in order to determine if there was a significant change in reading stamina over the course of the study period. In support of the fourth hypothesis, results indicate significant growth of reading stamina over the course of the study period, $x^2 = 30$, df = 2, p < .05.

Reading Stamina	Mean	Std. Deviation	Ν
Fall	4.2941	1.64942	17
Winter	12.1765	.95101	17
Spring	28.6667	2.76887	15

Table 3Descriptive Statistics for Reading Stamina

A fifth analysis was conducted to evaluate three samples of grit over the course of the study period. A Friedman's Two-Way analysis of variance was conducted in order to determine if there was a significant change in grit over from the beginning ($M_1 = 2.88$, SD = 1.27), middle ($M_2 = 3.34$, SD = 1.22), and end ($M_3 = 3.54$, SD = 1.07) of the study period. In support of the fifth hypothesis, results did indicate significant growth of grit from the beginning to end of the study period, $x^2 = 9.254$, df = 2, p < .05.

Table 4Descriptive Statistics for Grit

Level of Grit	Mean	Std. Deviation	Ν
Fall	2.8847	1.26958	17
Winter	3.3459	1.21510	17
Spring	3.5388	1.07232	17

The final analysis conducted was set to evaluate two repeated measures. A Wilcoxon Signed-Rank Test was used to evaluate the difference between scores on the DESSA Mini before $(M_1 = 51.94, SD = 11)$ and after the course $(M_2 = 54, SD = 9.84)$. The results of the test indicated that the difference was not significant, T = 81, p > .05. The null hypothesis was accepted. Results indicate that student strengths as measured by the DESSA Mini did not change over the course of the study period.

Table 5Descriptive Statistics for DESSA Mini

DESSA Mini Score	Mean	Std. Deviation	Ν
Winter	51.9412	11.00835	17
Spring	54.00	9.84547	16

Discussion

Relationship between Grit and Reading Stamina

The first question was to determine whether or not there is a relationship between grit and reading stamina. It was hypothesized that students with higher levels of grit would demonstrate higher reading stamina. According to Table 1, the relationship between grit and reading stamina was not significant.

Although the results were not statistically significant with this sample, it is likely that a larger sample size would have produced significant results. This information would suggest that students with higher levels of grit have greater reading stamina and would be able to read independently and remain on task during read to self time in the classroom. The gritty individual approaches achievement as a marathon; his or her advantage is stamina (Duckworth et. al., 2007). Additionally, those students with lower levels of grit more easily become off-task, distractible, or disinterested in the reading activity. These potential differences in student characteristics may impact the way teachers approach setting goals for students. Teaching students qualities that emphasize character resilience and perseverance may change student's academic outcomes. Grit is really about the student's stamina and how consistently they are working in a certain direction and how hard they are working (Duckworth, 2013).

Correlation between DESSA Mini and Grit

The second question was to determine whether or not there was a correlation between the DESSA Mini and Grit, as measured by the MUM-GRITT. The DESSA Mini is an established measure of student strengths with strong reliability and validity. The DESSA Mini is also an equivalent social-emotional rating scale to the Grit Scale for Children. The DESSA Mini was used to validate the reliability and validity of the modified Grit Scale for Children. Previous research suggested that the DESSA Mini is a viable tool for universal screening of social-emotional competencies related to resilience (Naglieri, Lebuffe, & Shapiro, 2011). It was hypothesized that a student's score on the DESSA Mini directly corresponds to their level of grit. According to Table 1, there is a strong positive correlation between the DESSA Mini and grit. Therefore, the MUM-GRITT is an acceptable measure for evaluating student strengths and social-emotional competencies.

Relationship between the DESSA Mini and Stamina

The third question was to determine whether or not a relationship existed between the DESSA Mini and stamina. It was hypothesized that students score on the DESSA Mini corresponds with their reading stamina. According to Table 1, a significant relationship between the DESSA Mini and stamina does not exist. This contrast may be explained by many factors that would require additional research. One potential factor could be due to the DESSA Mini

being administered in the winter and spring. The DESSA Mini is only recommended for completion after knowing and having a relationship with students for a minimum of 2 weeks, therefore was not administered in the fall. The unequal amount of data points may have contributed to the results not being statistically significant.

Change in Reading Stamina

The fourth question for the hypothesis was to determine whether or not there is a change in reading stamina over the course of the study period. It was hypothesized that there is a significant change in reading stamina. According to Table 3, there was a positive and significant change in student's reading stamina across the study period (from fall to winter, winter to spring, and fall to spring). Although students are continuously developing and maturing naturally, research indicates that the implementation of the Daily Five intervention increases reading stamina (Boushey & Moser, 2014). In the Daily Five, students work on gradually building stamina until they are successful at working independently on reading. One way to teach students to be independent learners is to gradually transfer the responsibility for learning to our students (Fisher & Frey, 2008).

Change in Levels of Grit

The next hypothesis determined whether there was a change in levels of grit over the course of the study period. While results presented in Table 4 indicate that there is no significant change in grit from the beginning to middle of the year or middle to end of the year, there is an overall significant increase in level of grit from the beginning to end of year. A common question frequently asks how grit could be intentionally cultivated by parents and teachers. Grit has been linked with growth mindset (Duckworth, 2013).

Carol Dweck at Stanford University and colleagues have now accumulated an impressive body of correlational and experimental evidence demonstrating that a growth mindset encourages children to construe failures and setbacks as opportunities to learn and improve, rather than as evidence that they are permanently lacking in ability (Duckworth, 2013). In the Daily Five, students work on gradually building stamina until they are successful at working independently on reading. The Daily Five program also stresses the importance of creating a new and positive environment in the classroom where students are independent and responsible for their own roles, thus teaching students how to be grittier.

Grit scores changed over the course of the study period from fall to spring, however, grit did not significantly increase from fall to winter or winter to spring. Though the exact cause for the increase in scores over the entire study period and not between increments is unknown, it is important for schools to take note of the increase over time. Although grit is a personality trait which is considered to be somewhat static, the results of the study may indicate that students can be taught to internalize characteristics of grit and resiliency through programs such as the Daily Five intervention which focuses specifically on teaching stamina and independence.

Change in DESSA Mini Scores

The final hypothesis determined whether there was a change in a student's strengths according to the DESSA Mini scores over the course of the study period. While the results were not significant, there was a slight increase in student's strength as reported by the DESSA Mini from winter to spring. As mentioned before, the DESSA Mini is only recommended for completion after knowing and having a relationship with the students for a minimum of 2 weeks,

therefore was not administered in the fall. While there is a strong positive correlation between the MUM-GRITT and DESSA Mini, it is believed that the unequal amount of data points may have contributed to the results not being statistically significant.

Limitations

Limitations of this research study include the small sample size that was used despite the original and novel nature of this research. It is more difficult to make broad generalizations due to the research looking at one first grade classroom. The study lacked a control group of another first grade classroom that does not use the Daily Five intervention. The age ranges of the participants were selected because of the availability for data collection, however, it would have been useful to look at grit and stamina in comparison to a larger age range. Grit assessments have been normed and studied for children in third grade through adulthood, however, the current novel and seminal study is one of the first to explore grit in first grade students. Another limitation of the study is that the research deals with third party rating measures as completed by the teacher. Due to time constraints, the data completed by the teacher in the fall was provided retrospectively as opposed to real time. Additionally, students are naturally building and increasing stamina as they are exposed to the general education curriculum. Finally, the amount of time that students were able to read to self while measuring stamina was limited. The teacher used a "barometer" student to determine when to prompt the students to move on to the next activity. A barometer student is defined in the Daily Five as students responsible for the break in stamina for three to five days in a row when first launching the intervention.

Implications

The data from this seminal study indicate and suggest that grit may be beneficial in a first grade classroom and that first graders have many characteristics and features of grit. Overall, in a larger sample of students, students with higher levels of grit are predicted to have higher levels of stamina. Those students who have perseverance and passion for long term goals are more likely to be successful in accomplishing their goals in the classroom.

This research indicated that grit scores are more likely to increase as the year goes on when exposed to the Daily Five intervention. When implementing interventions for students in the classroom, a component teaching independence and motivation will likely be beneficial, as those who have lower grit scores need more opportunities for success to sustain and increase their effort and independence. It may also be helpful measuring students' level of grit at multiple points throughout the school year (fall, winter, and spring) in order to determine the appropriate levels of support and how to intervene with students.

Future Research

The current study was able to add to the overall literature on factors influencing reading stamina and grit in first grade students. While the results varied, mild to moderately significant findings were discovered. The focus of the study is to bring support to students in the classroom by increasing their independence and grit. Emphasizing these character traits could potentially lead to an increase in reading stamina and academic performance. The scope of this study did not include students receiving special education services, however, students on an Individualized Education Program (IEP) have established long-term academic goals. It may be beneficial to assess student's level of grit and compare it with the students' progress on the IEP. Standardized assessments measuring levels of grit may be used to determine if grit is a predictive factor for

student success.

The present study looked at the Daily Five intervention from a class-wide perspective and did not take into account the other first grade classrooms or other types of intervention being used. Schools may utilize a wide variety of intervention in order to address both academic and behavioral goals. Future research may take this into account and look specifically at grit and other types of interventions. By comparing grit and other interventions, information may be provided as to which specific interventions promote the greatest amount of grit and motivation in students.

Given this work and similarly conceived curricula aimed at teaching optimistic explanatory style, one promising direction for future research entails directly measuring the impact of directing attention to specific, changeable aspects of performance on trait-level grit (Duckworth, 2013). Research has shown the significance of understanding grit and how educators can help students achieve their long-term goals and persevere in the face of adversity.

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Appendix A

8- Item Grit Scale

Directions for taking the Grit Scale: Please respond to the following 8 items. Be honest – there are no right or wrong answers!

 New ideas and projects sometimes distract the student from previous ones.* Very much like the student Mostly like the student Somewhat like the student Not much like the student Not like the student at all

2. Setbacks (delays and obstacles) don't discourage the student. They bounce back from disappointments faster than most people.

Very much like the student Mostly like the student Somewhat like the student Not much like the student Not like the student at all

3. The student has been obsessed with a certain idea or project for a short time but later lost interest.*

Very much like the student Mostly like the student Somewhat like the student Not much like the student Not like the student at all

4. The student is a hard worker. Very much like the student Mostly like the student Somewhat like the student Not much like the student Not like the student at all

5. The student often sets a goal but later chooses to purse (follow) a different one.* Very much like the student Mostly like the student Somewhat like the student Not much like the student Not like the student at all

6. The student has difficulty maintaining (keeping) their focus on projects that take more than a

few months to complete. *

Very much like the student Mostly like the student Somewhat like the student Not much like the student Not like the student at all

7. The student finishes whatever they begin. Very much like the student Mostly like the student Somewhat like the student Not much like the student Not like the student at all

8. The student is diligent (hard working and careful).

Very much like the student Mostly like the student Somewhat like the student Not much like the student Not like the student at all

Scoring:

- 1. For questions 2, 4, 7, and 8 assign the following points:
 - 5 = Very much like the student
 - 4 = Mostly like the student
 - 3 = Somewhat like the student
 - 2 =Not much like the student
 - 1 =Not like the student at all
- 2. For questions 1, 3, 5, and 6 assign the following points:
 - 1 = Very much like me
 - 2 = Mostly like me
 - 3 = Somewhat like me
 - 4 = Not much like me
 - 5 = Not like me at all

Add up all the points and divide by 8. The maximum score on this scale is 5 (extremely gritty), and the lowest scale on this scale is 1 (not at all gritty).¹

¹ Questions with an asterisk (*) indicate reverse coding of the question item.

Appendix B

Reading Stamina Chart



Appendix C

Demographic Questionnaire

Please complete the following questions. Fill in the blanks or check the appropriate box.

1.)	Age:					
2.)	Gender:	□ Male	or	□ Female		
3.)	Has the stu	ıdent been reta	nined?	□ Yes	or	□ No
4.)	Did the stu	dent attend pr	eschool?:	□ Yes	or	□ No
5.)	Which Tie Tie Tie Tie	r of support is r 1 r 2 r 3	the studen	nt receiving?		

Tier 4

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