EXAMINING GRIT, GROWTH MINDSET, HARDINESS AND RESILIENCE IN ONLINE LEARNING ENVIRONMENTS: A REVIEW OF THE RESEARCH

W. Barber, R. Kay, J. Harvey
Ontario Technology University (CANADA)

Abstract
Current research indicates that grit, growth mindset, hardiness and resilience are psychological constructs beneficial to learning [1,2,3]. Furthermore, success in online learning may be mediated by various concepts related to the characteristics of individual learners, thereby affecting how individuals approach the online learning experience, and how they deal with challenges that emerge in digital learning environments. Despite a scarcity of research addressing the specific intersection of resilience and online learning, of note are studies conducted by Baxter [4], Berenson, Boyles and Weaver [5], Kemp [6] and Xie, DeBacker and Ferguson [7], which addressed resilience as a factor in online learning success, within the broader scope of emotional intelligence, persistence and online identity. Studies by Baxter [4] and Xie, DeBacker and Ferguson [7], connect a strong online identity to learner agency, resilience, and motivation to succeed. Of additional relevance is a 2008 study conducted by Berenson, Boyles and Weaver [5], who examined emotional intelligence (EI) and personality to determine the extent to which they predict grade point average in online community college learners. Results suggest that resilience, while directly associated with emotional intelligence, is not a predictor of GPA. Their findings provide indirect support for Kemp’s research [6] that showed successful learners in a distance community college program displayed high levels of resilience. This paper provides a theoretical examination of academic hardiness, resilience, grit and growth mindset as they relate to online learning, explores the specific role that they may have as character traits in learning in general, and, more importantly, their relevance to online learning. The relationship between hardiness, resilience, grit, growth mindset and student success in online learning environments is examined, and how these factors contribute to success in online learning environments.

Keywords: grit, growth mindset, resilience, hardiness, online learning.

1 INTRODUCTION

1.1 Overview
This paper examines the research related to the psychological constructs of Grit, Growth Mindset, Resilience and Hardiness, as they apply to learning in online learning settings. While educational research is extensive with respect to grit, growth mindset, resilience and hardiness in relation to learning, much remains to be discovered regarding the applicability of these concepts to different online learning modalities. As many secondary and post-secondary institutions move toward online learning environments, with a highly personalized and self-directed nature, the relationship between grit, growth mindset, hardiness, resilience, and online student success needs to be examined. The limitations of the studies reviewed for this paper, emphasize the need for a relevant and current model of online learning that includes resilience, grit and growth mindset.

Grit has been defined as having the perseverance and passion for long term goals [8] and maintaining “a definite goal which will not be given up no matter how stressful things get” [9, p. 356]. Dweck [10,11] discusses the difference between fixed and growth mindsets noting that a growth mindset can help students persevere and develop grit in the face of challenge and adversity. She reveals that the difference between a fixed and growth perspective lies in whether the individual believes that his/her intellectual ability is static and fixed, or whether it can grow and change [10, 11]. Yeager and Dweck [3] refer to resilience as “any behavioural, attributional, or emotional response to an academic or social challenge that is positive and beneficial for development, such as seeking new strategies, putting forth greater effort, or solving conflicts peacefully” (p. 303). They refer to non-resilient behaviours as those that result in a negative response to a challenge, and not beneficial, such as quitting, cheating, or ineffective aggression or retaliation. Seligman [12] refers to resilience as “optimism, appraising situations without distorting them, thinking about changes that are possible to make, and bouncing back
from adversity, cognitive or otherwise" [12, p. 1]. In contrast, hardiness refers to a process of learning through stressful circumstances and growing through the process [9]. Hardiness also refers to a set of values and beliefs that “develops early in life and is reasonably stable over time, though it is amenable to change and is probably trainable under certain conditions” [13, p. 330].

Research about grit has been challenged by because it does not consider external factors such as poverty, level of education, health status, geographical location and other elements that may have an effect on academic success. In other words, one cannot consider resilience and hardiness without also examining the full context within which individuals live and work [32]. Arguably, while grit and talent can and do exist together, the biggest predictor of success is not talent, but grit [14].

Due to attrition levels and the struggles and isolation of online or distance learners, there is a need for examining the role that grit, growth mindset, hardiness and resilience may play in academic success for online learners. Common themes identified throughout the research on attrition in online learning include substantial gaps/differences in reported persistence and performance between learners of different genders and geographic locations [15]. Further differences exist in academic and social integration and perceived social belonging in practical challenges faced by online learners, including lack of available time to meet the demands of the online course, and in low levels of volitional control [16].

This review of research summarizes studies that measure grit across a variety of professions, settings, and populations, raising important questions about the need for further research into how the psychological constructs of grit, growth mindset, resilience, hardiness and academic hardiness impact online learning.

1.2 Purpose

The purpose of this study was to review literature related to the psychological constructs of Grit, Resilience, Growth Mindset and Hardiness, and, in particular, to investigate the role of these learner characteristics as they relate to academic success in online learning environments and contexts.

2 METHODOLOGY

2.1 Selection of Articles

The search for articles focused on studies of grit, growth mindset, resilience and hardiness across situations and contexts in studies published from 2007-2018. Titles and abstracts were screened for relevance and sorted according to qualitative or quantitative research. Only peer-reviewed articles using quantitative data were considered for the analysis comprised in this paper. Educational databases including EBSCO host, Scholar Google, Research Gate and ERIC served as sources for the following keyword searches: grit, growth mindset, resilience, hardiness, academic hardiness, online learning. The initial search was narrowed using a popcorn approach where relevant references from articles were used.

The original search produced 44 relevant articles, of which 21 were used to define terms and descriptions of grit, growth mindset, resilience and hardiness. The remainder were then scrutinized to select studies that used quantitative methods to measure grit across a variety of populations. This culling resulted in 23 articles published from 2007-2018.

2.2 Description of Studies

The research studies included in this review span years from 2007-2018, and although five countries are represented, the articles are predominantly American and written between 2013-2014. Few articles identify the role of grit and resilience in online learning settings. While some work has been done on self-regulation and emotional intelligence in online settings, there is a significant gap in the literature at the intersection of these concepts. It is also interesting to note that models of grit and resilience have been studied outside of academic settings, including the military, business and sales, and marriage. Most studies did not take into account additional factors such as gender, socioeconomic status or health status. Finally, a wide variety of self-report scales were used in these studies, so it is difficult to assess the validity of the measurement tools.
2.2.1 Year of Study

Forty-three percent (n=10) of the studies examining grit occurred in 2013-14, and 26% (n=6) happened in 2017-18. Research related to the intersection of grit, resilience and online learning is sparse, revealing only one recent article focused on grit and e-learning.

2.2.2 Sample Populations

Descriptions of sample data collected in this research review were rated as partial or complete. “Partial” meant that the size and some general characteristics were included, and “complete” meant that additional details such as socioeconomic status, education level, gender) were included. The majority of studies (n=18) included partial descriptions.

Five countries are represented in this review of research, including USA (n=18), Portugal (n=2), Australia (n=1), Bahrain (n=1), and Iran (n=1).

The populations studied varied considerably, and several articles included multiple populations. Overall, the studies included university/college students (n=7), military personnel (n=5), adults over age 25 (n=4), adolescents/high school students (n=3), children/elementary students (n=3), sales agents (n=1), teachers (n=1), athletes (n=1), married couples (n=1), gamblers (n=1) and online learners (n=2).

2.2.3 Focus of Studies

All of the studies in this review focused on grit and most used the term interchangeably with resilience, grit and hardiness, despite the fact that the constructs are often defined differently. For the purpose of this study, 23 papers used measures of “grit” or “grittiness” two articles focused on online learning and grit emotional intelligence, and/or resilience.

2.2.4 Data Analysis

The following elements were used to categorize and code 23 papers: year of study, country, sample population, subject area, sample size, sample description, type of data collection, and focus of study. A brief chart is included as an appendix to summarize the 23 articles reviewed. Cross-comparison of this data reveals that the data collection tools were inconsistent. While some tools were validated and reliable, it was difficult to make comparisons between studies based on the wide variety of self-report tools used.

3 RESULTS

3.1 Overview

This review of 23 papers related to grit as a psychological construct focused primarily on populations of university/college students, adults, military personnel and adolescents and children. A few studies included other populations such as sales agents, athletes and teachers. No papers were found to have measurable tools or scales to assess quantitative measures of growth mindset, resilience, hardiness or academic hardiness. As such, the theme of grit across each of these populations is examined. Several articles examined multiple populations.

3.2 Grit/Hardiness in University/College Students (n=7)

Of the seven studies measuring grit in university undergraduates and graduates, each predicted that the level of student grit was predictive of academic success [1, 5, 17, 19, 20, 21].

3.3 Grit in the Military (n=5)

Five studies examined the role of grit in military personnel, both in cadets, experienced cadets and special ops forces personnel. All of these studies indicated that grit was a key factor in predicting success and retention in pre-military and experienced military personnel [1, 9, 13, 22, 23].

3.4 Grit in Adults (n=4)

Four studies reported on the role of grit in adults over the age of 25. These included two studies by Duckworth et al. [1], and Sylvia et al. [24], Von Culin et al. [25]. These studies indicated that motivational correlates in adults relate to the constructs of accomplishment and meaning, rather than pleasure and...
engagement [25]. Further, when attempting a challenging cardiovascular task, gritty people tried harder and sustained the work longer, resulting in greater overall completion of the task [24].

3.5 Grit in Adolescents (n=3)

Duckworth, Grant et al. [14], Eskreis-Winkler et al. [22], Ivcevic & Brackett [26], focused on the role of grit in adolescents. Findings indicated that grit was positively correlated to rates of graduation in Chicago public schools, where 88% of surveyed students graduated a year post survey, indicating that grit was strongly indicative of both academic conscientiousness and school motivation [22]. Additional work indicated that self-regulation and intention implementation as related to grit and perseverance for long-term academic goals can be intentionally taught to adolescents [14]. In contrast to this, other research that focused on the Big Five personality traits, concluded that in a survey of 213 adolescents, all school outcomes were significantly predicted by Conscientiousness and emotion regulation, but not Grit [26].

3.6 Grit in Children (n=3)

This category involved one large study in the Chicago public school system predicting rates of graduation [22], Duckworth et al. [1] in a second study predicted success in extracurricular national spelling bee competitions. A third study focused on academic hardiness in elementary students in Portugal [2].

3.7 Grit/Resilience in Online Learning (n=2)

It is interesting to note that no validated, reliable tools for measuring grit and resilience in online settings were found. One article focused on grit and e-learning [17] and a second introduced the term emotional intelligence as a factor in resilience in online learning [5].

3.8 Impact of Resilience and Gratitude on Learning (n=1)

Only one study focused on the directed and changing impact of gratitude on resilience in learning with college students [27]. This may indicate that research on “soft” skills is in its infancy and needs to be researched further.

3.9 Grit in Other (n=6)

This category includes studies that looked at individual contexts including sales agents [1], teachers [8], married couples [22], gamblers [21], athletes [28] and online learners [5, 17, 22]. Across these categories, grit was a significant predictor of motivation, perseverance and successful outcomes.

3.10 Qualitative Articles (n=21)

Overall, these articles provided a background for the theoretical basis of this review of the research. Subject-specific articles related to grit and academic achievement included the relationship of grit to math and science success [29], grit and information technology students [18] and the role of grit in language learning [30]. Furthermore, factors impacting attrition were examined by several authors [4, 6, 15, 26]. Two studies examined mental health and emotional resilience in online learning [5, 20]. Sun et al. [31] focused on the development of self-efficacy, resilience and grit in beginning surgeons and their long-term success in the medical field. Sylvia et al. [24] examined the physiological effects of cardiovascular activity and concluded that grittier people try harder in difficult physical tasks. Mills [32] discussed the ideas of grit being a two-edged sword that must be considered as multi-faceted and impacted by external forces such as poverty, gender and culture. Finally, research on growth mindset provided a grounded framework within which to examine grit, resilience and hardiness [3, 10, 11, 33].

3.11 Grit in Teachers (n=1)

Robertson-Kraft and Duckworth [35] discussed how grit is a factor in predicting the attrition rates of novice teachers in difficult or challenging circumstances. Interestingly, no studies were found that provided research on grit in online teachers. This is an area where teachers moving towards online pedagogy would benefit from the resilience and grittiness required to be lifelong learners using technology and teaching.
3.12 Grit Scales (n=1)

Duckworth and Quinn [36] provided background to the development of their Short Grit Scale. This was the only article specifically addressing measurement tools that have been widely used across populations and validated.

4 CONCLUSION

It is clear that there is a significant gap in the literature involving grit, growth mindset, resilience and hardiness as they pertain to online learners and digital learning environments.

Limitations of this review include the wide variety of scales and tools used to measure grit across populations and contexts. In addition, there are limitations to the accuracy of self-report data, as well as the need to acknowledge that there are many factors that influence how “gritty” an individual perceives themselves to be on a daily basis. Future research should examine the type, validity, and reliability of scales that are being used to measure resilience. Furthermore, a broader cross-section of international research would provide a fuller picture of how grit and resilience are perceived across cultures and genders, and also how pedagogy can be designed to facilitate the development of resilience in learners. Finally, research on grit and resilience in online learning is in its infancy, and this paper raises issues about how the development of resilience and grit in online learners can have a significant effect on attrition and academic success in digital environments.

REFERENCES


