



Moderating Role of Locus of Control on the Relationships between Grit and Test Anxiety among Undergraduates in Public Universities in Anambra State, Nigeria

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Abstract

This study investigated the moderating role of locus of control on the relationship between grit and test anxiety among undergraduates in public universities in Anambra State, Nigeria. Total of 381 undergraduates selected through simple random sampling and accidental sampling from Nnamdi Azikiwe University, Awka and Chukwuemeka Odumegwu Ojukwu university, igbariam served as participants. The sample comprised 134 males and 247 females, aged 18–37 years ($M = 24.14$, $SD = 5.77$). Standardized measures were utilized, including the Grit Scale (assessing perseverance and passion for long-term goals), the Test Anxiety Inventory (evaluating test anxiety levels), and Rotter's Locus of Control Scale (determining internal versus external orientation). A correlational research design was employed, and Hierarchical linear regression analyses were conducted to test the study hypotheses. The findings revealed that grit negatively correlated with students' test anxiety at ($F_{2, 378}$), $\beta = -.22$, $p < .01$. Internal locus of control did not moderate the relationship between grit and test anxiety at ($F_{6, 374}$), $\beta = .02$, $p > .05$. External locus of control moderated the relationship between grit and test anxiety at ($F_{6, 374}$), $\beta = .25$, $p < .01$. These results highlighted the critical role of locus of control in shaping how grit influenced test anxiety. The study emphasized the need for interventions to develop grit while fostering locus of control to reduce test anxiety among students. Implications for educational practices, counselling strategies, and future research are discussed.

Keywords: locus of control, grit, test anxiety, undergraduates

Introduction

Undergraduates often face numerous challenges that hinder their academic performance, stemming from both student-related and lecturer-related factors. Student-related issues include slothfulness, poor time management, inadequate study schedules, financial difficulties, lack of access to study materials, and personal struggles such as family instability, doubts, and feelings of despair. On the other hand, lecturer-related factors such as ineffective teaching methodologies can also negatively impact students' ability to

maximize their academic potential. For many undergraduates, particularly those still in their adolescent years, transitioning from parental care to an unfamiliar and demanding university environment can be overwhelming. This adjustment phase, coupled with the pressures of academic responsibilities, further compounds their challenges. One factor that has been often neglected and has been variously implicated by numerous authors is test anxiety (Rehman, et al., 2021; Rana & Mahmood, 2010; Embsea, et al., 2018). Ironically, test anxiety has dealt blows to even those students who are deemed as very intelligent, to the point of failing examinations.

Therefore, test anxiety involves the physical stress that individuals go through when they encounter a situation where they are being evaluated during exams or assessments (Steinmayr et al. cited by Jirjees et al., 2024). It is characterized by intense apprehension or fear before and/or during an exam, and might cause physical, cognitive, and behavioural symptoms. Additionally, short-term memory-related tasks such as exam preparation and public speaking are more sensitive to the negative effects of test anxiety (Alsini et al., 2021). The prevalence of test anxiety varies among individuals and educational systems. For instance, it has been reported by different studies that over one-third of undergraduates experienced elevated levels of non-specific anxiety (Li et al., 2022; Liyanage et al., 2021). Hence, test anxiety can have a significant negative impact on students' social well-being, emotions, academic performance, and overall well-being (Mofatteh, 2020).

Since, anxiety about an upcoming test could lead to increased levels of motivation, focus, effort, and subsequently higher grades (Kader, 2016). Yet, for others, the effects could be debilitating. It may lead to worry and an inability to concentrate (and/or a tendency to procrastinate) in the weeks and months building up to the examination period, limiting their ability to work and revise material effectively (Howard, 2020). In severe cases, it may even lead to panic attacks (The Learning Center at the University of North Carolina at Chapel Hill, 2023). It may also lead to problems during the examination itself, leading to an inability to focus or forgetting key content, such as 'going blank' in the exam (Doctor & Altman cited by Jerrim, 2023).

The causes of test anxiety are complex and can vary from person to person. However, the most common factors include academic pressures, personality traits, social issues, and financial problems (Zheng et al., 2023; Zwettler et al., 2018). Most college-related factors that contribute to student anxiety include the transition to college, the heavy workload, and summative assessments (Mofatteh, 2020). These factors are commonly reported among undergraduates, especially those studying complex courses (Alsini et al., 2021; Khater et al., 2014). There is a growing body of research suggesting a relationship between anxiety and test performance. Other factors contributing to exam anxiety include gender, excessive course load, low self-efficacy, poor social support, family over-protectiveness, lack of self-confidence, lack of home learning, maladaptive perfectionism, and inadequate preparation and time management (Hanfesa et al., 2020; Tsegay et al., 2019).

Moreover, various coping strategies are used by undergraduates to overcome exam anxiety. These include changes in daily activities, such as sleep patterns, seeking social and family support, relaxation techniques, praying, and exercise, and changes in eating and drinking habits, such as increased consumption of energy and caffeine drinks. In addition, some undergraduates relied on medication through using it before exams to reduce stress and anxiety. Consequently, understanding factors that aid in reducing test anxiety becomes imperative. Thus, the variables of grit and locus of control could reduce test anxiety.

Grit is a term used to describe grit in the academic realm. Undergraduates' grit is defined by (Dweck et al., 2014) as a mindset and skills that enable them to go beyond short-term goals and achieve long-term goals. Working hard and smart over long periods is the essence of resilience (Singh & Chukkali, 2021). It is a personality factor that explains differences in individual abilities in achieving academic success (Christopoulou et al., 2018). It is also a personal characteristic or ability that includes determination, resilience, and focus in pursuing challenging long-term goals in education (Clark & Malecki, 2019). Since, it is a character demonstrated through actions aimed at maintaining persistence and enthusiasm to achieve desired long-term goals (Sturman & Zappala-piemme, 2017). Based on the foregoing, three important elements of grit have been identified: (1) a clear goal to be achieved, (2) continuous effort to achieve the goal, and (3) commitment and enthusiasm

for the goal. Clear goals emphasize the direction of the goal, and continuous hard work shows “persistence for effort,” which relates to the mental strength to continue working under pressure, but to achieve goals, commitment and passion relate to “consistency” interest”(Duckworth et al., 2007). Grit is not a simple combination of perseverance and interest, but rather an element of purposeful direction, distinct from persistence, interest, and a combination of both (Lam & Zhou, 2019). As a response, (Duckworth & Gross, 2014) noted that the concept of grit strongly emphasizes the role of personal gain and that courageous people are more likely to focus their interests on achieving future goals.

The above explanation indicated that grit is an important factor in understanding undergraduates' academic learning, especially in improving undergraduates who are at high risk of not overcoming challenges in school. In recent years, grit has received increased attention from educational psychologists and has emerged as an important non-cognitive predictor of students' academic performance (Duckworth & Yeager, 2015). Scholars have shown the beneficial role of grit in achievement and life outcomes. For instance, higher levels of grit are associated with higher educational attainment, greater school and performance, a healthier lifestyle, better life satisfaction, more positive affect and less negative effect, and lower risks of mental disorders and problematic behaviours (Fernández et al., 2020; Datu, 2021). However, studies have identified the factor structure of grit, its association with other similar constructs, and its predictive ability for outcomes (Tang et al., 2019, 2021; Ponnock et al., 2020; Morell et al., 2021; Jiang et al., 2022).

According to studies, students with a high level of grit can use their skills to increase their efforts to achieve their vision (Credé et al., 2017). As a result, the student becomes less focused on short-term goals and less afraid of the possibility of failure. Undergraduates with higher ambitions demonstrate higher engagement, which leads to higher academic productivity (Hodge et al., 2018). Undergraduates with high-grade scores have higher academic achievement than students with lower grit scores (Mason, 2018). Undergraduates with high grit scores are undergraduates who are hardworking and productive, able to persevere through difficult times, complete many difficult tasks, and

overcome learning obstacles more easily perhaps due to the undergraduate's internal or external locus of control.

Rotter (1966) defines locus of control as the degree to which a person perceives an outcome as being contingent on their actions or those of external forces, existing along a continuum from a more internalized orientation to a more externalized orientation. Locus of control is the degree to which people believe that they, as opposed to external forces (beyond their influence), have control over the outcome of events in their lives. Locus of Control refers to an individual's perception of the underlying main causes of events in his/her life. A person's "locus" (plural "loci", Latin for "place" or "location") is conceptualized as internal (a belief that one can control one's own life) or external (a belief that life is controlled by outside factors which the person cannot influence, or that chance or fate controls their lives).

Internal locus of control has been conceptualized as the degree to which an individual believes that the outcome of his behaviour is dependent on himself or his abilities. People who believe that outcomes are dependent on their behavior or personal characteristics are said to have an internal locus of control. In contrast, those with an external locus of control believe that life outcomes are determined by forces outside of their control (e.g., independent of their actions or as a result of fate, luck, or chance), are dependent on powerful others, or are unpredictable due to the complex nature of the social environment (Tyler, et al., 2020). Internal locus of control can also be referred to as the extent to which people believe that they have control over the outcomes and events in their lives as opposed to external forces having control ("External Locus of Control") (Hernandez, et al., 2021). Internal locus of control can also refer to the tendency of an individual to attribute to the self the causes of happenings and events in the individual's personal life (Nowicki & Strickland 1973).

So, people with a high level of internal control believe in their capacity and capability to achieve things on their own. When they pass an examination, it is simply because they worked for it. When they get uncommon favour, it is because they have proven themselves to attract such favours to themselves. Generally speaking, people who are high in internal level of control believe to have the ability to determine their future. In other words,

internal locus of control people believe strongly that they are the architects of their destiny. Internal locus of control has been implicated in various aspects of life, people high in internal are said to respond better to treatment and treatment outcomes (Pourhoseinzadeh, et al. 2017; Tyler, et al., 2020), experience higher life satisfaction (Devin, et al., 2012), are achievement motivated (Villa & Sebastian, 2021), more goal-oriented and academic achievement (Bulus, 2011), and a lot more.

External locus of control on the other is the belief that one's behavior will not lead to valued reinforcement that is available in the environment and therefore not under one's control. External locus of control refers to the belief that effects in our lives are primarily determined by external forces or factors beyond our control. Individuals with an external locus of control tend to attribute outcomes, both positive and negative, to luck, fate, or the actions of others, rather than their efforts or abilities. They often feel that they have little influence over their own lives and that external circumstances dictate their experiences and achievements. People with an external locus of control may feel powerless and may struggle with feelings of helplessness and resignation. They may believe that their success is contingent upon external factors such as the actions of others, the economy, or even cosmic forces. This belief can lead to a lack of motivation and initiative as individuals may not perceive their actions as having a meaningful impact on their lives.

It is important to note that having an external locus of control is not inherently good or bad. People with external locus control may feel relieved of responsibility for negative outcomes, which can reduce feelings of guilt and shame. On the other hand, this belief system can also limit their growth and potential, as they may not take proactive steps to improve their circumstance or seek out opportunities for personal development. It is worth noting that an external locus of control is not an all-or-nothing concept. Many individuals may have a mix of internal and external locus of control beliefs, with some aspects of their lives being perceived as within their control while others are seen as externally determined. The occurrence of reinforcement is believed to be a function of factors out of one's control such as luck, chance, or randomness. In contrast, a person with a high external locus of control perceives their behaviors as a result of external influences or luck – e.g., I did well on the

test because it was easy. According to Manichander (2014), persons with an external locus of control are more likely to cry foul all the time, to feel helpless and powerless, and to indulge in “victim mentality” or behavior (such as blaming and criticizing, complaining, and fault-finding, “giving-up” or “checking-out”).

A good number of research works have been done on the individual variables of this study; however, there is still limited research on the combined variables of this study. While grit and test anxiety have been individually studied, there is a scarcity of research examining their interplay, particularly with locus of control as a moderating factor. Most studies exploring these constructs have been conducted in Western or developed contexts, with limited attention to undergraduates in public universities in developing regions like Anambra State, Nigeria. Although locus of control has been studied as a predictor or independent variable, its moderating role in the relationship between grit and test anxiety remains underexplored. There is insufficient research focusing on undergraduates, a population that often experiences high test anxiety, and could benefit from understanding the roles of grit and assertiveness in academic success. Few studies have integrated grit, assertiveness, and test anxiety into a single framework, leaving a gap in understanding how these variables interact to influence academic outcomes. These gaps establish the need for your study and underscore its potential contribution to psychological research and educational interventions.

Theoretically, this is why Heider (1958) in his Attribution theory explains that individuals perceive the causes of everyday experience, as being either external or internal. For instance, an experience may be perceived as being caused by factors such as the person's control (internal) or it may be perceived as outside control (external). In other words, a person tends to assume that other people are each responsible for their misfortunes while blaming external factors for the person's misfortunes. In the realm of education, this approach helps students develop a more nuanced understanding of their abilities and the factors that contribute to their successes and failures. The general purpose of this study was to examine if locus of control will moderate the relationship between grit and

assertiveness on test anxiety. Meanwhile, the specific objectives for this study include the following:

1. To find out if grit will correlate positively with test anxiety.
2. To see if internal locus of control will moderate the relationship between grit and test anxiety.
3. To find out if external locus of control will moderate the relationship between grit and test anxiety.

Research Questions

1. Will grit correlate positively with test anxiety?
2. Will internal locus of control moderate the relationship between grit and test anxiety?
3. Will external locus of control moderate the relationship between grit and test anxiety?

Hypotheses

The following hypotheses were tested in this study:

1. Grit will correlate positively with test anxiety.
2. Internal locus of control will moderate the relationship between grit and test anxiety
3. External locus of control will moderate the relationship between grit and test anxiety.

Method

Participants

A total of three hundred and eighty one (381) undergraduates from Nnamdi Azikiwe University and Chukwuemeka Odumegwu Ojukwu University, Igbariam participated in the study. All participants were within 18-37 years. The mean age of the participants was 24.14 with standard deviation of 5.77.

Instruments

Three instruments were used in the study. Test anxiety scale, Grit scale and Nowicki-Strickland Locus of control scale.

Test anxiety scale

The scale contains 20 items and was developed by Spielberger (1980). The items are scored on a 4-point Likert response pattern ranging from 1= almost never to 4= almost always. The aim of the scale is to measure anxiety proneness in tests, examinations and evaluative situation. Some items of the scale are “I feel confident and relaxed while taking tests”, “while taking examination I have an uneasy, upset feeling”. The scale has two subscales, and they are 1. Worry- which refers to excessive preoccupation and concern about the outcome of a test, especially the consequences of failure, and the following items of the inventory measure it, and the items are: 3, 4, 5,6,7,14,17 and 20. 2. Emotionality- which refers to an individual’s behavioural reactions and feelings aroused by test situations, and emotionality is measured by the following items – 2, 8,9,10,11,15,16 and 18. There is no time limit for completing the test anxiety inventory according to the original authors. There is direct and reverse scoring of items. The reverse item of the scale is item 1, and the rest is direct scoring items. Spielberger (1980), provided original psychometric properties for American samples, while Omoluabi (1993), provided the properties for Nigerian samples. The norms as reported by Omoluabi (1993), are as follows: worry subscale 13.21 for male and 12.47 for female and the emotionality subscale 14.24 for male and 14.27 for female. The total for male is 34.77 and 34.37 for female. The time intervals for the test-retest reliability results reported here are 21 days for the American samples and 72 days for the Nigerian samples. Test anxiety inventory was correlated with state trait anxiety inventory forms X- I and X-2 by Spielberger, et al (1970) to obtain the following concurrent validity coefficients; for X- I (men .67 and female .34) and X-2 (for men .54 and female .48). For the Nigerian samples X-1 (.19 for both male and female) and X-2 (.62 for both male and female). The Nigerian norms or mean scores are the basis for interpreting the scores of clients. Scores that are higher than the norms indicate typical manifestation or worrying, emotionality or general test anxiety. Scores lower than the norms indicates the absence of test anxiety. The present researcher established a Cronbach alpha reliability of .88 using 50 undergraduates from Madonna University, Okija.

Grit scale

The scale contains 12- items and was developed by Duckworth et al (2007). The items are scored on a 5 – point Likert response pattern ranging from 1= not at all like me to 5= very

much like me. Items contained in the scale include statements such as: I have overcome setbacks to conquer an important challenge; my interests change from year to year. The reverse items of the scale include items – 2, 3,5,7,8 and 11. The grit scale has two subscales- one level measures perseverance of effort and the other measures passion (consistency of interest). The items that measure consistency of interest (passion) are items 2, 3,5,7,8, and 11, whereas the rest of the items measure perseverance of effort. The developers reported a high internal consistency (α .85) for the overall scale and for each factor (consistency of interest α = .84; perseverance of effort α = .78). The present researcher obtained an internal consistency (Cronbach alpha) reliability of .81 using 50 students Madonna University, Okija.

Nowicki-Strickland Locus of control scale

The scale is a 40-item inventory developed by Nowicki and Strickland (1973). The locus of control scale was developed to access the extent to which an individual has internal locus of control or external locus of control. Internal locus of control is the tendency by an individual to attribute to the self the causes of happenings and events in the individual's personal life, while external locus of control is the tendency to make the attributions to others or to external sources. While internals take responsibility for what happens to them, externals give the responsibility to others. The scale has as dichotomous response pattern of Yes or no answer. A client's total score is the addition of the yes and the no items correctly shaded. Nowicki & Strickland (1973), provided the psychometric properties for American samples while Jaiyeoba (1992, as cited by Omoluabi, 1997), provided the properties for Nigerian samples. The items of the scale contain questions such as "do you believe that you can stop yourselves from catching a cold?", "do you think it's better to be smart than to be lucky". The Nigerian norms as reported by Jaiyeoba (1992 as cited by Omoluabi, 1997), are 30.52 for men and 30.77 for women. Nowicki and Strickland (1973), reported six-week interval test-retest reliability coefficients of .63, .66, and .71 for 3rd grade, 7th grade and 10th grade students respectively. Jaiyeoba (1992, as cited by Omoluabi, 1997), obtained a concurrent validity coefficient of .25 by correlating N_SLCS with index of self- esteem developed by Hudson (1982). The Nigerian norms or mean scores are the basis for interpreting the scores of clients. Scores higher than the norms indicate external locus of control while scores lower than the norms indicate internal locus

of control. The present researcher established a Cronbach alpha reliability of .93 using 50 undergraduates from Madonna University, Okija.

Procedure

The researchers using simple random sampling selected two faculties (Arts and social sciences faculties), and one department was selected from the faculties (Philosophy and Psychology departments). The researchers approached the students with the help of class representatives from selected Faculties and Departments. After gaining the approval of the students, questionnaires were administered with the help of the different class representatives, who were adequately intimated before the administration of the questionnaires. Rapport was established with the students, and the confidentiality of the process was assured to them. All the participants were encouraged to complete the instruments and submit them immediately.

Ethical considerations

Participants were duly informed about the purpose, methods, potential risks, and benefits of the study in clear, accessible language. They voluntarily agreed to participate after being informed of all aspects of the study that could influence their decision. The researcher provided an opportunity for participants to ask questions, and participants signed a consent form to demonstrate their willingness to participate. Participants were assured of the confidentiality of all processes and the data they submitted. The participants were duly informed that participation was entirely voluntary, without coercion or undue pressure, and that they could withdraw at any time without penalty or negative consequences.

Design and Statistics

The study was survey research, and correlational design was employed for the study because the objective of the study was to establish the relationship that exist among, test anxiety, grit, assertiveness and locus of control. Multiple linear regression analysis was used in interpreting the data collected. The justification for using multiple regression analysis was that the study examined the relationship between two independent variables and one dependent variable. Another justification for the choice of the statistical method was that multiple regression is the most common methodology for testing moderation.

Results

The study result is presented as follows.

Table: Multiple Linear Regression of Test anxiety, grit, assertiveness and locus of control

Sources	B	Std.E.	df	T	β	R	R ²	Adj.R ²
						208	.483	.471
Constant	84.47	7.48	6	11.29				
Grit	-.89	.18		-4.99	-.41*			
Assertiveness	.04	.04		1.04	.07*			
Internal *Grit	.36	1.13		.32	.02			
External *Grit	5.14	1.14		4.51	.25*			

The result showed that grit and locus of control dimensions (internal and external) contributed to 48.3% of the variance in test anxiety, with $R = .695$, $R^2 = .483$, adjusted $R^2 = .471$ ($F_{6, 374} = 49.69$, $p < .05$). This showed that grit, and locus of control dimensions (internal and external) together contributed of explains the variability in test anxiety. It equally showed that grit and locus of control contributed to test anxiety at 48.3%.

Grit negatively predicted students' test anxiety at ($F_{6, 374}$), $\beta = -.41$, $p < .05$. For the moderation: Internal locus of control did not moderate the relationship between grit and test anxiety at ($F_{6, 374}$), $\beta = .02$, $p > .05$. External locus of control moderated the relationship between grit and test anxiety at ($F_{6, 374}$), $\beta = .25$, $p < .01$.

Summary of Findings

1. Grit did correlate and predict negatively with test anxiety.
2. Internal locus of control did not moderate the relationship between grit and test anxiety.
3. External locus of control moderated the relationship between grit and test anxiety.

Discussion

The first finding of this study suggests that individuals with higher levels of grit tend to experience lower levels of anxiety when faced with academic assessments. This negative correlation between grit and test anxiety could indicate that individuals who possess high levels of grit are more likely to manage stress and anxiety effectively when confronted with academic tasks. High-grit individuals tend to maintain focus and perseverance even in the face of challenges, which could reduce the cognitive and emotional resources typically allocated to anxiety during high-pressure situations like exams. This suggests that grit might buffer individuals against the debilitating effects of anxiety, possibly by promoting a more task-focused mindset.

This finding supported the previous research conducted by Alazeme, et al., (2023) and other studies that have shown a negative relationship between grit and test anxiety, suggesting that individuals who are more determined and persistent are better equipped to manage the emotional challenges associated with academic tasks, thereby reducing anxiety. Alazemi, et al., (2023), showed in their research findings that students who have developed a healthy state of academic emotion regulation, grit, resilience and self-assessment could modulate their test anxiety. Additionally, the negative correlation with test anxiety is consistent with the work of Xiao et al., (2021), who conducted a study on the relationship between two aspects of grit (perseverance of effort and consistency of interest) and the two dimensions of test anxiety (emotionality and worry), as well as the differences of the relationship across gender group among Chinese students. Their findings indicated that consistency and perseverance were negatively associated with two dimensions of test anxiety.

One potential mechanism for this negative correlation is that grit fosters a growth mindset, where individuals believe their abilities can improve with effort. This mindset might reduce the fear of failure that often accompanies test anxiety, as high-grit individuals may view academic challenges as opportunities for growth rather than insurmountable obstacles. Furthermore, grit is associated with effective self-regulation and goal-setting,

which may help individuals organize their study habits and approach test preparation in a systematic, less anxiety-inducing way.

Another finding of this study was that internal locus of control did not moderate the relationship between grit and test anxiety. Specifically, individuals with higher levels of grit tend to experience lower test anxiety, and this relationship is not stronger for those with a higher internal locus of control. The moderating role of internal locus of control in the relationship between grit and test anxiety provided further insight into how these variables interact. Locus of control refers to the extent to which individuals believe they can control the events that affect them. Those with a high internal locus of control are more likely to believe that their efforts and actions directly influence outcomes. For individuals with high levels of grit, this belief in their ability to influence outcomes may not further reduce test anxiety by reinforcing their confidence in their ability to succeed through effort and persistence. This particular finding is in contrast with the finding of Quing and Baudin (2021), who researched the roles of internal locus of control and grit in managing the academic stress of senior high school students. They found out that both grit and internal locus of control are negatively correlated with academic stress. Again, the finding of Talapatra (2021), is in contrast with the finding of this present study. Talapatra (2021), researched the relationship between locus of control and test anxiety of secondary school students in north 24 Paragana district of West Bengal. The result of the study showed that there was a significant negative relationship between internal locus of control and test anxiety.

The mechanism between internal locus of control and grit is an interesting one, as both traits influence how individuals approach challenges and persist in the face of adversity, though they focus on different aspects of motivation and behaviour. An internal locus of control could be said to support the development of grit by promoting a mindset where individuals believe their efforts and persistence can lead to success. When people believe they have control over their outcomes, they are more likely to exhibit the sustained effort, resilience, and passion needed for grit. While grit focuses on long-term perseverance and passion, an internal locus of control strengthens the belief that such perseverance can lead

to meaningful results. Therefore, the two traits are complementary and often work together, and this explains the findings of previous studies. The disparity between the findings of the previous studies and that of the current study could be attributed to cultural differences.

Another finding of this study was that external locus of control moderated the relationship between grit and test anxiety. Individuals with an external locus of control tend to believe that external factors (such as luck, fate, or the influence of others) play a large role in determining their outcomes. In this case, it means that a high external locus of control contributed to strengthening the negative relationship between grit and test anxiety. This finding is in contrast with the finding of Hevenkamp- Hermelink, et al., (2019), who researched differential associations of locus of control with anxiety, depression and life events. They discovered that a more external locus of control predicted higher anxiety and depression severity, but did not influence the incidence of positive and negative life events, this their finding contradicted that of this study. Also, the work of Dala and Gulrajani (2020), on the role of locus of control and family dynamics in academic anxiety of high school students, was in contradiction with this result. Dala and Gulrajani (2020), findings revealed that internal locus of control students showed lesser test anxiety as compared to the externally oriented students. A good number of factors may have contributed to why the finding of this study is in contrast with some of the existing findings. Some of the reviewed works used high school students but the current research used university undergraduates. Cultural differences is another factor, some reviewed works were done outside Africa whereas the current work was carried out in Nigeria.

Theoretically speaking, this study contributed to the growing body of research on the psychological factors influencing test anxiety by integrating grit and locus of control into a cohesive framework. The findings supported the protective roles of grit against test anxiety, while also highlighting how locus of control moderated these relationships. This demonstrated that the interplay of dispositional traits (grit and locus of control) with perceptions of control plays a crucial role in understanding test anxiety. These results enriched the theoretical understanding of how individual differences shape responses to

test anxiety and provide a foundation for future studies exploring these constructs in other domains, such as school.

This study highlighted the importance of creating educational environments that promote not only academic skills but also psychological resilience. Educational institutions could adopt holistic approaches that combine grit workshops as part of the curriculum or co-curricular activities to enhance students' coping strategies. It is also important to note that test anxiety reduction programs are tailored to individual differences, recognizing that students with varying levels of grit and locus of control may require different types of support.

Additionally, these findings can inform teacher training programs. Educators who understand the relationship among these variables can better support students, identifying those at risk for test anxiety and guiding them toward appropriate resources.

Further, from the findings of this study, the following recommendations are made:

1. Educational policies should emphasize the importance of psychological well-being and allocate resources to programs that promote grit in students.
2. University authorities should ensure that all students, particularly those from marginalized or high-stress backgrounds, have equal access to resources for addressing test anxiety and enhancing grit.
3. Institutions should regularly evaluate the success of interventions designed to address test anxiety and related factors, making adjustments based on student feedback and outcomes.

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