STUDIA UBB PSYCHOL.-PAED., LXXI, Special Issue, 2026, p. 77-103
(Recommended Citation)
DOI:10.24193/subbpsyped.FOHE.5

Grit as a Predictor of Student Engagement in Learning Activities

Horaţiu CATALANO[1], Ana RUS[2], Gabriela MESTIC[3], Simona VOIN[4], Anca ANI-RUS[5*]

ABSTRACT. *Grit*, defined by perseverance and passion in achieving long-term goals, can be considered a predictor of students' academic engagement and success. The present study investigates the relationship between students' level of *Grit* and the engagement they demonstrate in their educational path. Student engagement can be characterized by active participation in learning activities, increased motivation for achieving performance, and self-study related discipline.

The study has made use of the questionnaire-based survey as a quantitative data collection method and the focus group method as a qualitative method. The level of engagement was assessed through the Academic Engagement Scale (*Academic Engagement Scale*), developed by D. Rovan and collaborators (2016), having 15 items, structured across three dimensions: behavioral, emotional and cognitive. To measure the level of *Grit*, the *Grit Scale* has been used which has been developed by A. Duckworth and consists of 10 items. The sample of participants consisted of 76 students, enrolled in the specialization Primary and Preschool Educational Pedagogy.

The results showed that a high level of *Grit* can enhance student involvement in learning activities, thus leading to better results and implicitly to increased performance.

[1] Department of Education Sciences, Faculty of Psychology and Education Sciences, Babeş-Bolyai University, Cluj-Napoca, Romania, horatiu.catalano@ubbcluj.ro
[2] Department of Education Sciences, Faculty of Psychology and Education Sciences Babeş-Bolyai University, Cluj-Napoca, Romania, ana.rus@ubbcluj.ro
[3] Department of Education Sciences, Faculty of Psychology and Education Sciences Babeş-Bolyai University, Cluj-Napoca, Romania, gabriela.mestic@ubbcluj.ro
[4] Doctoral School "Education, Reflection, Development", Babeş-Bolyai University, Cluj-Napoca, Romania, simona.nacaianu@ubbcluj.ro
[5] Department of Education Sciences, Faculty of Psychology and Education Sciences Babeş-Bolyai University, Cluj-Napoca, Romania, anca.rus@ubbcluj.ro
* Corresponding author: anca.rus@ubbcluj.ro

In order to be able to improve both the level of *Grit* and academic engagement, it is important to provide students with attractive, personalized learning experiences according to their individual needs.

Keywords: *Grit*, academic engagement, academic success, students.

1. Introduction

Within the context of contemporary education, student engagement in learning activities has become a topic often addressed in studies pertaining to academic success in higher education. Involvement in learning activities refers not only to the student's physical presence in the classroom, but also to the active participation in the teaching process, the motivation they feel for performance achievement and their ability to self-regulate.

According to the existent body of research, student engagement exceeds the purely cognitive dimension of information acquisition being additionally reflected in behaviors, attitudes, and affective reactions that determine the degree to which the student actively participates in the educational act. Thus, involvement in learning activities should not be understood as a stable trait, but rather as a dynamic behavior, influenced by the learning context, emotional experiences as well as by the pedagogical strategies used. This concept is a complex and dynamic construct, manifested through behavioral, cognitive and emotional components that directly influence the quality of students' educational experiences. Understanding these dimensions allows for a more nuanced analysis of how students relate to the learning process highlighting the essential role of the educational context in supporting active engagement. Consequently, it is important to identify the personal characteristics that can foster maintaining a high level of engagement, even in challenging situations.

In this regard, it is essential to understand the psychological factors that can influence the degree of involvement of students, one of these factors being the *Grit*, introduced by A. Duckworth (2018) in her studies, a concept that refers to the perseverance and passion of a person to achieve long-term goals. Studies argue that *Grit* may be associated with academic success, resilience to difficulties and intrinsic motivation (Hodge et al., 2018; Liu, 2021; Babiera & Quirap, 2024).

However, the relationship between *Grit* and students' involvement in learning activities has not been thoroughly explored in the Romanian academic context. Given the increasing pressure to perform in a competitive educational system, understanding how *Grit* influences learning engagement becomes essential for students. The concept of *Grit* sums up resilience, conscientiousness, self-control

and perseverance, essential constructs for academic success (Bashant, 2014). In the educational context, resilience is regarded as a process, a capacity or a result of successful adaptation, regardless of the difficult circumstances a student goes through, being considered an important component that determines success in one's learning endeavors (Hodge et al., 2018).

Taking into account these theoretical considerations and the need for a deeper understanding of the psychological mechanisms that support student engagement in learning activities, this study aims to investigate the extent to which *Grit* can predict this involvement. The results of our study can contribute both to completing the specialized body of research and field literature and to support the emergence of educational strategies aimed at the development of perseverance and student engagement in learning activities.

1.1. Students' Engagement in the Learning Activities

Involving students in learning activities is a complex, multidimensional concept that reflects how students engage in learning, both behaviorally and cognitively or emotionally. It is considered a very strong predictor of academic success (Green et al., 2012; Eryilmaz, 2015) as students achieve higher levels of information processing (Skinner & Pitzer, 2012).

Higher education students perceive engagement in academic activities as essential for their development, for integration into the academic community and for the preparation needed for the labor market, significantly influencing their perseverance and success in higher education (Sá, 2023).

Engagement in learning activities is the degree to which a student is actively involved and connected to the educational process with the aim of learning and achieving optimal results (Lopez-Aguilar et al., 2021). According to Y. A. Qurratuaini and collaborators (2022), this engagement time can also be defined as a state of mind related to academic life, characterized by: (1) *vigor* (feeling resilient and energetic); (2) *dedication* (pride and enthusiasm); (3) *absorption* (focusing on academic activity).

Other studies offer a different perspective on engagement (Sajib, 2024), highlighting three main dimensions of it: (1) behavioral, (2) emotional, and (3) cognitive. These dimensions generate results such as activity related persistence, learning satisfaction and academic success (Astin, 2014).

Another point of view related to the involvement in learning activities is offered by A. A. Asanre and collaborators (2024), who define involvement according to the quantity and quality of the behavioral, emotional, cognitive and psychological responses that students manifest in relation to the lived experiences. Thus, involvement plays a key role in supporting the cognitive, social and emotional development of students, through the three defining dimensions.

Involvement is frequently used as an indicator of the efficiency and quality of the educational system as well as of one's overall academic success. Students with a high level of involvement can show a positive attitude, oriented towards educational goals (Wilson et al., 2021), thus adopting a growth mentality, with a greater openness to progress.

On the one hand, several researchers (Zhao et al., 2021; Al-Rashidi, 2025) associate learning activities engagement with the students' well-being and their ability to adapt to the educational environment. Conversely, other researchers argue that the involvement is not limited to the physical participation of students in courses, but consists of a complex and constant interaction between the time, effort, and resources invested by them and the conditions that the institution provides for the unfolding of the activities (Popandopulo & Kudysheva, 2019; Tholibon et al., 2022).

The categorisations of engagement styles highlight that students do not engage in learning activities in a single fashion. H. Coates (2007) identifies the following engagement styles: (1) intense; (2) independent; (3) collaborative and (4) passive. Among these, independent involvement emphasizes the student's own initiative, favoring self-directed study and critical thinking (Trowler & Trowler, 2011). Collaborative engagement is based on teamwork and constant interaction with peers. This type of engagement contributes to the development of social skills and the improvement of problem-solving skills. At the opposite pole is passive engagement, in which student participation is minimal, and knowledge is received without active contribution, which limits the potential for deep learning (Matos et al., 2023).

1.1.1. Student Engagement Dimensions in Learning Activities

Approaching student engagement in learning activities, through the three component dimensions (1) behavioral, (2) cognitive and (3) emotional, allows capturing the complexity of how students participate and engage in the educational process. Although described separately, these dimensions work in close interdependence: emotional engagement can support active participation, and cognitive engagement often develops in contexts where the student feels motivated and connected with the learning activities. Specialized literature highlights the distinct role of each dimension in maintaining academic motivation and perseverance (Alrashidi et al., 2016). In this regard, their analysis is essential for this study, given the link between the level of *Grit* and how students engage in learning activities.

a) *Behavioral engagement* is the visible dimension of student involvement in academic and institutional activities, and is frequently considered a direct indicator of active participation in the educational process. The field literature emphasizes

that this form of involvement is manifested through a series of positive and responsible behaviors, which reflect the compliance with the norms and rules of the educational institution, but also with the aspect of avoiding disruptive conduct (Finn & Zimmer, 2012; King, 2020). A central element of behavioural engagement is active participation in the learning process, including maintaining attention during classes, engaging in discussions, asking questions and asking for further explanations when necessary. Such behaviors lead to an increased interest in the studied content (Napitupulu & Susti, 2023; Ningsih, 2025). Another important component is the involvement in extracurricular activities, which extend the academic experience beyond the classroom. Participation in student projects, university organizations, cultural events or sports competitions contributes to the development of social and organizational skills, being associated with a smooth academic adaptation and positive long-term results (Wu & Fernando, 2023).

b) Cognitive engagement refers to the depth with which students process information, the mental strategies they use in learning, and the level of intellectual effort invested in academic tasks. This dimension reflects the student's willingness to exceed basic requirements and engage in a deep, comprehension-oriented and self-regulating learning process (Alrashidi et al., 2016). This type of involvement involves the use of complex learning strategies: (1) processing and organizing information, (2) monitoring your own progress and (3) self-assessment in relation to the proposed objectives. Students who exhibit a high level of cognitive engagement take responsibility for their own learning process, seeking to understand the relationships between concepts, adapting their strategies according to the difficulty of the task (Trowler & Trowler, 2011; Pohl, 2020). At the same time, in this dimension, the student's disposition to make additional intellectual effort is taken into account, even when learning activities are complex or demanding. Cognitively engaged students are characterized by perseverance, intrinsic motivation, and a desire to improve their performance through exploration and critical reflection. Cognitive engagement is particularly important for authentic learning as it fosters the formation of stable mental structures, the development of critical thinking and the integration of concepts, directly contributing to higher academic performance (Finn & Zimmer, 2012; Doolittle & Byrnes, 2023; Ismayilova, 2025).

c) Emotional involvement refers to all the emotional reactions that a student experiences in relation to different aspects of the educational environment (academic activities, networking with colleagues and teachers, the environment, etc.). This dimension reflects how emotions influence participation in learning activities and can encompass both positive experiences (enthusiasm, interest, satisfaction, well-being, etc.) and negative emotions (anxiety, frustration, boredom, sadness, disappointment, etc.). The presence or absence of these affective experiences

are relevant indicators of emotional engagement, influencing how the student connects with assigned learning tasks (Cook et al., 2020; Bhaw et al., 2024; Sobreira et al., 2025). In this study, the emotional dimension of academic engagement is analyzed through performance anxiety, a negative affective indicator with significant potential to limit student participation in educational activities. Elevated levels of anxiety can reduce motivation, impede concentration, and decrease engagement at both behavioral and cognitive level, emphasizing the important role emotions play in the learning process.

1.1.2. Repercussions of Low Student Involvement in Learning Activities

In addition to the positive effects of heightened academic engagement, it is necessary to point out the long-term consequences if this involvement is low, thus resulting in absenteeism, boredom and an inability to retain the covered body of information. Other authors complement this vision by suggesting that non-involvement can arise from inertia, apathy or disillusionment, and some students fail to connect with the university environment due to incompatibility between personal values and expectations, in relation to those promoted by the institution (Aloka et al., 2023).

The learning environment plays a key role in shaping students' engagement styles, and educational contexts that support learning are associated with higher levels of participation and engagement (Guzman & Doronio, 2025). This diversity of engagement modes emphasizes the importance of tailored educational strategies, capable of stimulating the active participation of all students.

Moreover, student engagement is strongly influenced by the way teaching activities are designed. Studies show that strategies such as active learning, collaboration, use of constructive feedback, frequent interaction with teachers or the use of online learning environments can significantly increase the level of engagement (Alrashidi et al., 2016; Matos et al., 2023)

Starting from the studies under analysis, we contend that academic engagement is the result of a shared responsibility between the student, teachers and the institution, all stakeholders having active roles in generating qualitative learning experiences, requiring active collaboration and involvement from all parties involved in the higher education learning/teaching process.

1.2. Grit – Students' Passion and Perseverence Related to Learning Activities

The power of passion and perseverance contributes to the creation of a significant academic experience, supporting engagement, growth and continuous progress. Students who manifest a high level of *Grit* manage to maintain their motivation even in tense situations; they also manage to look for additional

resources for learning and overcome the obstacles inherently present in their university training. They are able to adapt their strategies and find effective ways of organizing and managing tasks, which, in turn, favors the development of a proactive attitude towards their academic activity (Wati, 2017).

Grit is defined as a stable tendency to maintain interest and effort in achieving long-term, established personal goals. Achieving these goals requires perseverance and passion (A. Duckworth, 2018). The author, through her theory, connects *Grit* with people's potential to effectively achieve their goals. According to some studies, *Grit* is considered a predictor of educational and professional success, due to the fact that passion and perseverance, manifested in the long term, significantly influence the development of professional skills (Arabacioglu, 2024).

Among students, this feature is associated with the degree of involvement in learning activities in order to achieve a higher level of academic performance (Park et al., 2018). Field researchers have frequently analyzed the relationship between *Grit* and various psychological factors relevant to one's academic path, highlighting the fact that perseverance and passion to achieve long-term goals, contribute to maintaining students' emotional balance in demanding educational contexts (Fabelico & Afalla, 2020; Muniz, 2024).

Studies elaborated by M. Wati (2017) and J. Biglete (2025) frequently describe high-level *Grit* students as engaged, consistent, and motivated in learning activities, even when they encounter difficulty in achieving goals. However, this perspective can sometimes be excessively optimistic or insufficiently supported from an empirical standpoint. Specialized literature draws attention to important limitations of the concept. In its traditional definitions, *Grit* combines perseverance and passion for stable goals, being associated with the ability to maintain focus and overcome academic challenges (Hernandez et al., 2020).

Some research studies show that *Grit* overlaps considerably with other traits, such as conscientiousness or self-control, raising questions about its distinctive value as a predictor. In addition, *Grit* puts a strong emphasis on individual responsibility, a standpoint that may ignore the important influence of the educational context, social support or institutional resources. Moreover, the idea that *Gritty* students always manage to push their boundaries can create an idealized view of perseverance. Some authors believe that while *Grit* may contribute to the development of resilience and adaptation after failure, it does not guarantee performance, and in some situations, persistent effort may become counterproductive, preventing strategy change or the dismissal of unrealistic goals (Gjedia, 2015; Jachimowicz et al., 2018; Datu, 2021).

Without an appropriate level of motivation and perseverance, student involvement in academic activities could become superficial, lacking in commitment and continuity. *Grit* allows students to realize that the learning process is

complex and individualized, and each student has both strengths and areas that require improvement (Tiwari & Verma, 2023).

Students with a high *Grit* level tend to manage negative emotional reactions more effectively and stay anchored in tasks, capitalizing on self-regulation strategies that help them overcome difficulties (Lagos & Magallanes, 2020; Putri & Ingarianti, 2024). They understand that performance anxiety is part of the academic experience, conversely being able to turn it into a stimulus for perseverance, maintaining interest, effort, and long-term engagement.

Research shows that perseverance and passion for personal goals contribute both to sustaining effort and behavioral discipline, and to the use of effective cognitive strategies in the learning process (Park et al., 2018).

As mentioned earlier, *Grit* is a central psychological factor in understanding how students structure and support their involvement in long-term learning activities (Duckworth et al., 2007; Hernandez et al., 2020). Research shows that perseverance and passion for personal goals contribute both to maintaining effort and behavioral discipline, and to the use of effective cognitive strategies in the learning process (Park et al., 2018; Gjedia, 2015).

The analysis of the relationship between *Grit* and the three dimensions of academic engagement addressed in this study (behavioral, cognitive and emotional) allows for a complex understanding of how students engage in learning activities.

2. Research Methodology

2.1. Research Aim

The purpose of the present study is to examine the extent to which students' *Grit* level predicts their academic engagement, operationalized through behavioral, cognitive, and emotional dimensions (performance anxiety). The study aims to highlight the role of *Grit* as a predictor of active student engagement in learning activities.

2.2. Research Objectives

O1: Assessment of the *Grit* level among students.

O2: Measurement of the level of academic involvement, operationalized by the behavioral, cognitive and emotional dimensions.

O3: The analysis of the relationship between the level of *Grit* and each of the three dimensions of academic engagement: behavioral, cognitive, and emotional.

O4: Investigating how *Grit* predicts academic engagement of students on three dimensions: behavioral, cognitive, and emotional.

2.3. Research Questions

Q1: What is the relationship between students' *Grit* level and their academic engagement, on the behavioral, cognitive and emotional dimensions?

Q2: To what extent does students' *Grit* level predict academic engagement on the behavioral, cognitive, and emotional dimensions (performance anxiety)?

2.4. Research Hypotheses

H1: Students' *Grit* level correlates positively with the academic involvement, on the behavioral, cognitive and emotional dimensions.

H2: The *Grit* level significantly predicts students' academic engagement across the behavioral, cognitive and emotional dimensions (performance anxiety).

2.5. Research Variables

VI (predictor): *Grit*
VD1: Behavioural engagement
VD2: Cognitive engagement
VD3: Emotional engagement (performance anxiety)

2.6. Participants and Procedure

At the early stage of the study, the students who were part of our sample received information about the research development and its duration, consent agreements have been signed, respecting the conditions for the collection of personal data detailed in the General Data Protection Regulation (GDPR). According to EU regulations, as per law 679/2016, this agreement ensures a high level of protection of individuals and diminishes problems related to the flow of personal data, ensuring that the level of protection of the rights and freedoms of individuals with regard to the processing of such data is equivalent in all member states.

Our sample was a convenience based one, being made up of 76 students, female and male, enrolled in The "Babeş-Bolyai" University of Cluj-Napoca, at the Extensions of the University of Nasaud and Targu Mures, following the specialization Primary and Preschool Educational Pedagogy, from the I, II and III years of study, frequency and distance education forms of study. Convenience sampling was chosen, because through this method, researchers have the opportunity to form the sample of participants relatively easily and in a fairly short time (Curelaru, 2022).

2.7. Materials and Methods

Our study was both a quantitative and qualitative one, using as research methods questionnaire-based survey and the focus group method. The questionnaire-based survey is one of the most widely used methods in quantitative research, constituting an effective way of obtaining information by means of coherent recorded questions, presented in a logical sequence, requiring the respondent's provision of a written answer. Combining the focus group with the questionnaire-based survey is an advantage in identifying the respondents' opinion, providing a better analysis of the answers and comprising suggestions for interpreting the collected data (Chelcea, 2022). The focus-group method is a flexible one highlighting differences of opinion between participants, providing new perspectives on the subject (Nyumba et al., 2018).

In order to streamline the focus group organisation, the sample of participants was divided into groups of up to 20 people for the method to be effective. The duration of the discussions during each meeting was about one hour in the instances when the question and answer session was added at the end of the session. In the first part of the focus group, participants were given information on the meaning of the concept of *Grit*, then discussing the relationship between the students' level of *Grit* and their academic engagement. This method was used in order to enable participants to become familiar with the key concepts related to *Grit* and its impact in the activities carried out by students. The discussions started from the initial question *What does academic involvement mean for you according to the three dimensions: behavioral, cognitive and emotional*?

The discussions then continued drawing on the provided questions: *What is the relationship between students' level of Grit and their academic engagement?* and *To what extent does the Grit level of students predict academic engagement on the behavioral, cognitive, and emotional dimensions?*

The study participants were asked to answer each question individually before sharing their answers within the group in order to identify common perspectives. The participants' answers were analyzed through *the large table method* (Chelcea, 2022), which allowed us to analyze the information taking into account certain categories drawn from the three questions.

Additionally, in order to assess students' educational engagement, we have used the Academic Engagement Scale (AES), Rovan et al., 2016, consisting of 15 items that reflect how students engage in learning activities and how they experience them cognitively, behaviorally, and emotionally. Answers are offered on a Likert scale with 5 points, where 1 *fully disagree*, and 5 means *fully agree*.

The instrument assesses the three dimensions of educational engagement:

1. *Behavioural engagement:* reflecting the active engagement and attention level manifested during class interaction. Included items: 1, 5, 7, 8, 11, 14, 15 (Examples of items: *I am very focused in class; I pay attention in class.*).
2. *Cognitive engagement:* it refers to the depth of information processing, use of learning strategies, and knowledge integration. Included items: 4, 6, 9, 13 (Examples of items: *When I study, I ask myself questions to ensure that I understand what I focus on. I correlate ideas that I learn during class time with my daily life.*).
3. *Emotional engagement/performance anxiety:* gauges the negative affective reactions associated with the learning process, such as restlessness, tension or stress. Included items: 2, 3, 10, 12 (Examples of items: *I always feel anxious in class; I am restless when I study.)*

Higher scores on behavioral and cognitive engagement reflect an increased level of educational engagement. Higher scores on emotional engagement/ performance anxiety indicate a higher level of learning-related stress and are negatively interpreted in the context of effective engagement. For measuring the level of *Grit*, *The Grit Scale* was used. It was developed by A. Duckworth (2018), consisting of 10 items (examples of items: *Obstacles do not discourage me. I don't give up easily; I finish whatever task I start.).*

3. Results

The qualitative analysis of the data obtained within the focus groups was carried out by means of the large-scale mass method (Chelcea, 2022), aiming at completing the quantitative data, in order to obtain an overview of the issues addressed. This method has allowed us to organize responses under thematic categories and to identify differences or similarities expressed by participants. Thus, we obtained the following thematic categories: (1) Dimensions and characteristics of engagement in learning activities; (2) Relationship between *Grit* and involvement; (3) The importance of *Grit* in the development of each dimension of engagement.

The categorization of the received answers was made by two evaluators according to the scheme presented, calculating the Alpha Krippendorff coefficient of fidelity. This coefficient is suitable for analyzing qualitative data encoded by several evaluators for different measurement levels, missing data or sample sizes (Krippendorff, 2019). Following the analysis, we obtained an Alpha Krippendorff

fidelity coefficient of 0.860, indicating a satisfactory level of agreement between the evaluators, as suggested by K. Krippendorff (2019). A value of ≥ 0.80 is generally considered satisfactory, which is acceptable for drawing triangulated conclusions based on the evaluated data.

Regarding the first thematic category, *Dimensions and characteristics of involvement in learning activities*, there was a tendency in participants' responses to perceive behavioral engagement as a basic condition in learning activities. An example of the participants' response is: "For me, behavioral engagement means to be present at the courses, to do your homework even though you may not really like the subject.". Regarding the cognitive dimension of engagement, most of the participants' responses were oriented towards the ability to understand concepts, an example of the received answers being "Cognitive engagement means trying to understand concepts, not just to memorize them, although I often resort to memorization". Emotional involvement is generally considered an action deployed in order to avoid unpleasant feelings. One of the answers provided by the participants is "Emotional involvement means not to be totally bored during the course, to feel that what you do makes sense, even if the enthusiasm is sometimes small.").

Following the analysis of this thematic category it has become apparent that the involvement in learning activities is recognized by students as a multidimensional, even hierarchical construct based on behavioral engagement. Cognitive engagement has the most obvious dissonance, in the sense that students recognize the value of authentic learning, deep understanding, but frequently admit that they resort to superficial strategies, such as memorizing amounts of information.

From the analysis of the responses, it was observed that students perceive the relationship between Grit and engagement positively, in the sense that Grit makes the difference between engagement based on impulse (in the moment) and engagement based on discipline and long-term goals.

In the second thematic category connected to the relationship between *Grit* and engagement, the majority of the answers have emphasized the fact that *Grit* is the foundation of engagement, in all its dimensions ("Without passion and consistency, you get involved only when it is easy or interesting."; "Even if I receive a small grade, I continue to make an effort to achieve a more important goal").

From the analysis of the responses, we have observed that students' perception of the relationship between *Grit* and engagement is a positive one, in the sense that *Grit* makes the difference between impulse-based (momentary) engagement and discipline-based and long-term goals engagement.

The third thematic category included views on the importance of *Grit* in each dimension of engagement. Thus, most of the participants considered behavioral engagement as the dimension that is most influenced by *Grit* ("I think *Grit* predicts behavioral engagement the most, because perseverance forces you to be present and work, regardless of the mood you are in."). Some responses have stated that *Grit* may be a predictor of cognitive engagement, but only in the case of in-depth learning ("A *Grit*ty student does not give up on a complex topic, focusing on it until he understands it."). Other responses stated that *Grit* cannot predict engagement ("I may be persistent for hours on end, but if I don't have the right cognitive strategies or if the subject is too abstract, *Grit* doesn't really help me understand. I can read countless times, but I still resort to memorization in this case.").

Regarding the emotional dimension of engagement, the participants stated that *Grit* can be a predictor of it ("*Grit* helps me to be optimistic and think about the end result, even if sometimes I feel overwhelmed by the situation.").

The analysis of our respondents' opinions on the importance of *Grit* in each dimension of engagement highlighted a hierarchy of influence. Most participants positioned behavioural involvement as the most strongly predicted dimension of *Grit*, due to its role in supporting effort persistence and physical presence, even in the absence of intrinsic motivation.

Therefore, according to qualitative results, based on focus group analysis, *Grit* is a predictor of behavioral engagement (of sustained action) and emotional engagement (of emotional stability), but it is ineffective as a predictor of cognitive engagement (of the quality of information processing).

For the analysis of the data and the interpretation of the results quantitatively, we used the SPSS version 29 program. Before testing the research hypotheses, a descriptive analysis of the data was carried out, in order to highlight the main characteristics of the sample and the distribution of the investigated variables. This stage allowed understanding the general levels of academic engagement and *Grit* among students, forming the basis for further interpretation of the relationships between variables. At the same time, in order to assess the internal consistency of the instruments used, the Cronbach alpha coefficient was calculated for each scale. The results showed good fidelity in relation to both instruments, with values of 0.87 for *The Academic Engagement Scale* (AES) and 0.81 for *The Grit Scale*. These values confirmed that the measurements are reliable and appropriate for subsequent statistical analyses.

The descriptive statistics for each construct were calculated: behavioural engagement, cognitive engagement, performance anxiety, overall academic engagement score (AES) and *Grit*. Testing of the normality of the data distribution

was carried out through the method of the Skewness and Kurtosis coefficients, the values indicating a normal distribution, within acceptable limits (±2) (Cohen et al., 2002).

Table 1

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Engagement_behav.	76	2.29	5.00	4.1034	.60815	-.472	.276	-.193	.545
Anxiety	76	1.75	5.00	4.0033	.85097	-.899	.276	.034	.545
Engagement cog	76	3.00	5.00	4.2895	.53705	-.335	.276	-.760	.545
AES	76	2.73	4.33	3.5886	.33385	-.326	.276	-.415	.545
GRIT	76	2.60	5.00	3.7558	.67392	.128	.276	-1.038	.545
Valid N (listwise)	76								

The descriptive statistics analysis of the variables included in the study provides an overview of the levels of academic engagement and *Grit*, as well as the distribution of responses, which are essential for the preliminary evaluation of the data (Field, 2024; Pallant, 2020). Behavioral engagement is high among students (M = 4.10, SD = 0.61), with scores ranging from 2.29 to 5.00. The distribution is slightly asymmetric to the left (skewness = -0.47), which indicates a general trend towards higher values of behavioural engagement, according to the criteria of asymmetry interpretation (Cohen at al., 2002). Cognitive engagement also records high values (M = 4.29, SD = 0.54), and distribution remains close to normal with reduced asymmetry (skewness = -0.33), suggesting acceptable distribution for further analysis (Cohen et al., 2002).

The global academic engagement score (AES) shows a moderate to high average (M = 3.59, SD = 0.33) with a low dispersion, suggesting a high homogeneity of responses (Gijbels & Omelka, 2013). With reference to *Grit*, students exhibit

a medium to high level of perseverance and passion for long-term goals (M = 3.75, respectively SD = 0.67), the distribution being almost symmetric (skewness = 0.13), indicating a balanced variability at the sample level (Field, 2024).

In what concerns the emotional engagement variable (performance anxiety), we state that items have been coded in reverse, so higher scores indicate a lower level of anxiety. The average obtained (M = 4.00, SD = 0.85), along with negative asymmetry (skewness = -0.89), suggests that most students report a reduced level of anxiety, while lower levels of the scale correspond to an increased level of anxiety (Pallant, 2020). This peculiarity of the scale highlights the fact that the sample is predominantly characterized by a relatively stable and adaptive emotional level in evaluation situations.

To test the first hypothesis, namely that students' level of Grit is positively correlated with academic engagement across the behavioral, cognitive, and emotional dimensions, Pearson correlations were conducted, and the results are presented below:

Descriptive statistic results show that students demonstrate high levels of engagement, both behavioral and cognitive, moderate levels of global engagement, high levels of *Grit*, and low levels of performance anxiety.

High *Grit* scores reinforce the idea that perseverance and long-term motivation can contribute to a more active involvement in the educational process. These data support the continuation of correlational and regression analyses to test relationships between variables.

For testing the first hypothesis, ***the students' Grit level correlates positively with academic engagement, on the behavioral, cognitive and emotional dimensions***. Pearson correlations were made, and the results can be observed below:

Table 2

Correlations between academic engagement and the Grit level

		Engagement_ behav.	Anxiety	*Engagement_ cog*	AES	GRIT
Engagement_cog.	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	76				
Anxiety	Pearson Correlation	.527**	1			
	Sig. (2-tailed)	.000				
	N	76	76			
Engagement_cog.	Pearson Correlation	.598**	.284*	1		
	Sig. (2-tailed)	.000	.013			
	N	76	76	76		
AES	Pearson Correlation	.771**	-.056	.708**	1	
	Sig. (2-tailed)	.000	.630	.000		
	N	76	76	76	76	
GRIT	Pearson Correlation	.565**	.485**	.366**	.328**	1
	Sig. (2-tailed)	.000	.000	.001	.004	
	N	76	76	76	76	76

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The undergone analysis of Pearson correlations focused on the relationships between the level of *Grit* and the three dimensions of academic engagement: behavioural, cognitive, and emotional (performance anxiety). The obtained results indicate the existence of statistically significant relationships between variables, suggesting that *Grit* is a psychologically relevant factor for understanding how students engage in academic activities.

Moderate and significant positive correlation was identified between ***Grit and behavioural engagement*** ($r = .565$, $p < .001$). This association indicates that students with higher levels of perseverance and passion for long-term goals tend to actively engage in learning activities, constantly attend classes, engage in discussions, and meet academic requirements. The relationship suggests that the behavioral dimension of engagement is sensitive to specific traits of *Grit*.

A significant, lower intensity positive correlation was identified between ***Grit and cognitive engagement*** ($r = .366$, $p = .001$). This result indicates that although the relationship is not as strong as that between *Grit* and behavioral engagement, students with higher levels of *Grit* tend, however, to contribute greater intellectual effort and use more effective learning strategies, manifesting an increased ability to self-regulate. Therefore, even with moderate intensity, the relationship remains relevant and supports the idea that *Grit* contributes to students' cognitive engagement.

The relationship between ***Grit and emotional engagement*** (performance anxiety) is positive and significant ($r = .485$, $p < .001$). Given that the scale items have been coded in reverse, higher scores indicate a lower level of anxiety. Thus, the correlation reflects the fact that high-*Grit* students exhibit less anxiety in learning situations, an aspect that consequently contributes to more stable and adaptive emotional engagement. This association is consistent with studies advocating that perseverance and motivational stability can cushion the effects of negative emotions in evaluation contexts (Datu et al., 2018; Jerrim, 2022; Yang, 2023).

Grit is also positively correlated with the total score of academic engagement ($r = .328$, $p = .004$), which shows that more persevering students tend to show a higher level of engagement in learning activities.

Pearson's correlations results show that the level of *Grit* correlates positively and significantly with all dimensions of academic engagement analyzed (behavioral, cognitive, and emotional) indicating that more persevering and goal-oriented students tend to show a higher level of academic engagement.

Thus, the hypothesis that ***students' Grit level correlates positively with academic engagement on the behavioral, cognitive and emotional dimensions is validated.***

For testing hypothesis 2, ***the Level of Grit significantly predicts students' academic engagement on the behavioral, cognitive and emotional dimensions (performance anxiety)***, three simple linear regression analyses were performed, having *Grit* as an independent variable and the behavioral, cognitive and emotional engagement (performance anxiety) as dependent variables.

Table 3

The results of the simple linear regressions having Grit as a predictor of academic engagement dimensions

Dependent variable	B	R	R^2	t(74)	F(1,74)	p
Behavioural engagement	0.51	.565	.319	5.89	34.69	< .001
Cognitive engagement	0.14	.18	.032	1.57	2.46	.12
Emotional engagement (performance anxiety)	0.61	.485	.235	4.76	22.66	< .001

Simple linear regression analysis showed that *Grit* exerts a significant influence on students' level of ***behavioral engagement***, with the model being globally significant, $F(1, 74) = 34.69$, $p < .001$. The non-standardised coefficient $B = 0.51$ indicates that for each increase with a point on the *Grit* scale, the behavioural engagement score increases by an average of 0.51 points (Holman, 2022). This relationship is statistically sustained, as shown by the value $t(74) = 5.89$, $p < .001$, which confirms that the effect is significant. The model explains a considerable percentage of the variance in academic behavior, $R^2 = .319$, which means that 31.9% of the observed differences between students in terms of their behavioral engagement can be attributed to their level of *Grit*. These results suggest that more persevering and consistent students in pursuing goals tend to be more actively involved in learning tasks, to be more attentive during classes, and exhibit performance-oriented behaviours. This result is consistent with research highlighting the link between *Grit* and sustained effort (Duckworth et al., 2007; Hou et al., 2022; Guo et al., 2023)

Regarding ***cognitive engagement***, the results indicate that *Grit* is not a significant predictor of it, with the model not being significant $F(1, 74) = 2.46$, $p = .12$. Although the regression coefficient has a positive value ($B = 0.14$), which would suggest a slight increase in cognitive engagement with *Grit* growth, this relationship is not statistically sustained, $t(74) = 1.57$, $p = .12$ (Opariuc-Dan, 2009). The model explains a very small percentage of the variation in responses, $R^2 = .032$, equivalent to only 3.2% of the variability, which indicates a very small effect (Sava, 2011). This lack of significance may reflect the fact that cognitive engagement is more determined by internal factors such as metacognitive

strategies, self-regulation, or learning styles rather than by traits such as *Grit* (Waheed, 2025). Thus, even if persistent students are motivated to put effort into their learning, this does not automatically generate a high level of cognitive engagement.

Regression analysis results indicated that *Grit* is a significant predictor of **emotional engagement** (performance anxiety), with the model being significant $F(1, 74) = 22.66$, $p < .001$. Thus, the *Grit* significantly predicts its variation, $B = 0.61$, with a robust statistical effect, $t(74) = 4.76$, $p < .001$. The model explains 23.5% of the variability, $R^2 = .235$, a significant percentage, which reflects an effect of medium to large size (Holman, 2022). Given that the scale items have been coded in reverse, a positive coefficient suggests that students with high levels of *Grit* tend to experience lower performance anxiety. This relationship indicates that passion and perseverance are personal resources that can help maintain emotional balance in stressful academic situations.

The result is consistent with studies that emphasize the role of *Grit* in regulating negative emotions and maintaining motivation. According to these studies, people with high levels of *Grit* have a greater ability to tolerate the emotional discomfort associated with assessment situations, persist in difficult tasks, and maintain motivation even when faced with obstacles or failures. These individuals tend to exhibit increased emotional resilience, which allows them to more effectively manage anxiety, stress or performance pressure (Eskreis-Winkler et al., 2014; Brooks & Seipel, 2018).

Simple linear regressions have shown that *Grit* is a significant predictor for two of the dimensions of academic engagement: behavioral engagement and emotional engagement, explaining a considerable proportion of their variability. Students with high levels of *Grit* tend to be more active in academic tasks and exhibit increased emotional stability in assessment situations. Conversely, *Grit* does not significantly predict cognitive engagement, suggesting that this form of engagement is influenced by other factors or is partially overlapped with behavioral engagement.

Therefore, the second hypothesis of the study, ***The Level of Grit significantly predicts students' academic engagement, on the behavioral, cognitive and emotional dimensions (performance anxiety)***, is partially confirmed.

4. Limitations, Discussions and Conclusions

The objective of this study was to investigate the relationship between students' level of *Grit* and their academic engagement, both globally and on three dimensions: behavioral, cognitive and emotional. The results obtained provide a complex picture of how perseverance and a passion for long-term

goals can influence student engagement related to learning, thus contributing to understanding the psychological mechanisms that support academic success.

The analysis of qualitative data from the focus groups organized with the students participating in the study showed that engagement is a multidimensional construct, and *Grit* is the foundation of engagement, in all its dimensions. These views are supported by the results of the Pearson correlations, which have shown that *Grit* is positively and significantly associated with all dimensions of academic engagement (behavioral, cognitive, and emotional). Students with higher levels of *Grit* tend to be more active in learning activities and exhibit lower levels of performance anxiety, which suggests better emotional adaptation in the academic context. These findings are consistent with the literature, which describes *Grit* as a stable factor contributing to maintaining effort and overcoming obstacles (Duckworth et al., 2007; Hou et al., 2022; Guo et al., 2023).

However, simple linear regression analyses have shown that *Grit* significantly predicts only two of the dimensions of academic engagement: behavioral engagement and emotional engagement. Thus, students with a high level of *Grit* exhibit a heightened involvement at the behavioral level, in learning activities, and a reduced level of performance anxiety. The results show that *Grit* functions as an important personal resource for sustaining constant effort and managing negative emotions associated with educational activity. These findings are also supported by a thematic analysis of responses within focus groups, in which participants described *Grit* as closely related to perseverance, self-discipline and emotional stability. Participants noted that *Grit*ty people tend to make constant effort, stay engaged in tasks even under difficult conditions, and manage the pressure of assessments more effectively. In their opinion, *Grit* manifests itself through action-oriented behaviours (active participation, study related continuity and taking responsibility), but also through the ability to maintain a balanced emotional state.

On the other hand, the study participants pointed out that the influence of *Grit* on cognitive engagement is much lower, with other categories of factors being significant (information organization, application of cognitive and metacognitive strategies, motivation, etc.) This qualitative perspective aligns with quantitative results, which have shown that *Grit* does not significantly predict cognitive engagement.

This interpretation is consistent with studies conducted by A. Duckworth and his collaborators (2007), which showed that individuals with high levels of *Grit* are able to remain focused on their goals even in conditions of difficulty or stress, showing a superior ability for emotional self-regulation. In addition, research by L. Eskreis-Winkler and his collaborators (2014), as well as H. D. Mason (2018) confirms that *Grit* contributes to reducing vulnerability with reference

to negative emotions by developing tolerance for frustration and persistence in the face of academic challenges.

In contrast, *Grit* was not found to be a significant predictor of cognitive engagement, although the correlation between the two variables was positive. One possible reason as to why *Grit* has not been shown to be a significant predictor of cognitive engagement may be related to the nature of the construct itself. *Grit* includes a passion for long-term goals and perseverance in effort, dimensions that can overlap with aspects of behavioral engagement, such as self-regulation and effort regulation. Thus, the variability explained by *Grit* can be absorbed largely by the behavioral component, allowing a diminished effect on cognitive engagement in the regression model (Popușoi, 2022).

Moreover, the literature suggests that while *Grit* positively correlates with cognitive engagement, other psychological factors such as self-control, conscientiousness, or metacognitive strategies may have stronger predictive power for academic results and cognitive engagement (Hodge et al., 2018). These results indicate that cognitive engagement, as opposed to behavioural and emotional engagement, may be more influenced by specific cognitive processes than by the passion and perseverance measured by *Grit*. Cognitive engagement may depend largely on factors such as cognitive self-regulation, metacognitive strategies, or intrinsic motivation not included in the model under analysis. Thus, *Grit* tends to support the behavioral and emotional dimensions of engagement in particular, while cognitive engagement may require additional educational support.

The results have partially confirmed the hypothesis related to the fact that the level of *Grit* predicts students' academic involvement on all three dimensions (behavioural, cognitive, emotional). With regard to research limitations, the small sample size (N = 76)reduces the generalization of results. The sample comes from a single university programme (Pedagogy of Primary and Pre-primary Education), which may affect generalisation for other specialisations as well. At the same time, the correlational design does not allow the formulation of causal conclusions, the identified relations indicating only associations. On the other hand, the absence of other relevant psychological variables (self-control, self-efficacy, intrinsic motivation or metacognitive strategies) may limit the explanatory power of the regression model used, especially in the case of cognitive engagement.

The present study demonstrates that *Grit* is a relevant indicator for understanding behavioral and emotional engagement, but it also suggests the limits of its influence when it comes to cognitive engagement. These findings are important both theoretically and practically, indicating that the development of *Grit* can help improve students' active behavioral engagement and emotional stability, whereas educational interventions aimed at increasing cognitive

engagement should target skills such as self-regulation, planning, learning monitoring and the use of effective cognitive and metacognitive strategies (Efklides & Metallidou, 2020; Wang et al., 2025). The study provides a relevant contribution to the academic engagement field highlighting the need for integrated educational interventions that take into account the differentiated role of *Grit* in the learning process. At the same time, the results open directions for future research, such as the analysis of the role of learning environments, intrinsic motivation or metacognitive strategies as part of the relationship between *Grit* and cognitive engagement.

REFERENCES

Aloka, P., Opondo, C. M., & Ooko, M. (2023). Expectations, culture, and adaptation to higher education institutions by first-year students. In *Handbook of research on coping mechanisms for first-year students transitioning to higher education* (pp. 1-20). IGI Global. https://doi.org/10.4018/978-1-6684-6961-3.ch001

Al-Rashidi, A. H. (2025). Academic engagement and its relation to academic competence among secondary school students, from the perspectives of school counselors. *International Journal of Innovative Research and Scientific Studies*, *8*(1), 1024-1035.https://ideas.repec.org/a/aac/ijirss/v8y2025i1p1024-1035id4504.html

Alrashidi, O., Phan, H. P., & Ngu, B. H. (2016). Academic engagement: an overview of its definitions, dimensions, and major conceptualisations. *International Education Studies*, *9*(12), 41-52.http://dx.doi.org/10.5539/ies.v9n12p41

Arabacıoglu, T. (2024). Scratch, computational thinking, and *Grit*: At the beginning, during, and after the COVID-19 Pandemic. *Instructional Technology and Lifelong Learning*, *5*(1), 1-20. https://doi.org/10.52911/itall.1391292.

Asanre, A. A., Ifamuyiwa, A. S., & Abiodun, T. O. (2024). Dimensions of Students' Academic Engagement as Predictors of Senior Secondary School Mathematics Achievement. *Journal of Science and Mathematics Letters*, *12*, 27-33. https://dx.doi.org/10.37134/jsml.vol12.1.4.2024

Astin, A. W. (2014). Student involvement: A developmental theory for higher education. In *College student development and academic life* (pp. 251-262). Routledge. http://chawkinson.pbworks.com/w/file/fetch/122997693/Student_Involvement_A_Development_Theory_for_Highe.pdf

Babiera, R. E., & Quirap, E. A. (2024). Learners' *Grit*, Self-Regulation, and Classroom Engagement. *International Journal of Multidisciplinary Research and Analysis*, *07*(04). https://doi.org/10.47191/ijmra/v7-i04-45

Bashant, J. (2014). Developing *Grit* in our students: Why *Grit* is such a desirable trait, and practical strategies for teachers and schools. *Journal for Leadership and Instruction*, *13*(2), 14-17. https://eric.ed.gov/?id=EJ1081394

Bhaw, N., Kriek, J., & le Roux, P. (2024). Emotional and User-experience Factors Influencing Student Performance: A Case Study of First-year Online Computer Programming Assignments. *UnisaRxiv*. https://doi.org/10.25159/unisarxiv/000096.v1

Biglete, J. (2025). Evaluating teachers' *Grit* in learning recovery and performance in the Philippine Professional Standards for Teachers (PPST) in San Pablo City public secondary schools: Inputs for an instructional supervisory plan. *Pantao, International Journal of the Humanities and Social Sciences, 4(3)*. https://doi.org/10.69651/pijhss0403463

Brooks, N. G., & Seipel, S. J. (2018). *Grit* and the information systems student: a discipline-specific examination of perseverance and passion for long term goals. *Information Systems Education Journal*, *16*(1), 21-32. https://files.eric.ed.gov/fulltext/EJ1173722.pdf

Coates, H. (2007). A model of online and general campus-based student engagement. *Assessment & Evaluation in Higher Education*, *32*(2), 121-141. https://doi.org/10.1080/02602930600801878

Cohen, L., Manion, L., & Morrison, K. (2002). *Research methods in education*. Routledge.

Cook, C. R., Thayer, A. J., Fiat, A., & Sullivan, M. (2020). Interventions to enhance affective engagement. In *Student engagement: Effective academic, behavioral, cognitive, and affective interventions at school* (pp. 203-237). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-37285-9_12.

Chelcea, S. (2022). *Metodologia cercetării sociologice. Metode cantitative şi calitative.* Bucureşti: Editura Prouniversitaria.

Curelaru, M. (2022). Eşantionarea. În L.R Diaconu-Gherasim, C. Măieran & M. Curelaru (coord.), Metode cantitative de cercetare. Designuri şi aplicaţii în ştiinţele sociale (pp. 295-318). Iaşi: Editura Polirom.

Datu, J. A. D., Yuen, M., & Chen, G. (2018). The triarchic model of *Grit* is linked to academic success and well-being among Filipino high school students. *School Psychology Quarterly*, *33*(3), 428. https://doi.org/10.1037/SPQ0000234

Datu, J. A. D. (2021). Beyond passion and perseverance: Review and future research initiatives on the science of *Grit*. *Frontiers in psychology*, *11*, 545526. https://doi.org/10.3389/fpsyg.2020.545526

Doolittle, P., & Byrnes, M. (2023). Cognition and Learning. *Educational Principles and Practice in Veterinary Medicine*, 79-132. https://doi.org/10.1002/9781119852865.ch3

Duckworth, A. (2018). *Grit. Puterea pasiunii şi a perseverenţei.* Bucureşti: Editura Publica.

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). *Grit*: perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, *92(6)*, 1087.

Efklides, A., & Metallidou, P. (2020). Applying metacognition and self-regulated learning in the classroom. In *Oxford Research Encyclopedia of Education*. https://doi.org/10.1093/ACREFORE/9780190264093.013.961

Eryilmaz, A. (2015). Positive psychology in the class: the effectiveness of a teaching method based on subjective well-being and engagement increasing activities. *International Journal of Instruction*, *8*(2), 17-32.

Eskreis-Winkler, L., Shulman, E. P., Beal, S. A., & Duckworth, A. L. (2014). The *Grit* effect: Predicting retention in the military, the workplace, school and marriage. *Frontiers in psychology*, *5*, 36. https://doi.org/10.3389/fpsyg.2014.00036

Fabelico, F., & Afalla, B. (2020). Perseverance and passion in the teaching profession: Teachers' *Grit*, self-efficacy, burnout, and performance. *Journal of Critical Reviews*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3655146

Field, A. (2024). *Discovering statistics using IBM SPSS statistics*. Sage publications limited. https://vlb-content.vorarlberg.at/fhbscan1/330900091084.pdf

Finn, J. D., & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter?. In *Handbook of research on student engagement* (pp. 97-131). Boston, MA: Springer US.https://doi.org/10.1007/978-1-4614-2018-7_5

Gijbels, I., & Omelka, M. (2013). Testing for homogeneity of multivariate dispersions using dissimilarity measures. *Biometrics*, *69*(1), 137-145 .https://doi.org/10.1111/j.1541-0420.2012.01797.x

Gjedia, R. (2015). Teaching and Learning Motivation, *European Journal of Social Sciences. 3.* 10.26417/ejser.v3i2.p113-122

Green, J., Liem, G. A. D., Martin, A. J., Colmar, S., Marsh, H. W., & McInerney, D. (2012). Academic motivation, self-concept, engagement, and performance in high school: Key processes from a longitudinal perspective. *Journal of adolescence*, *35*(5), 1111-1122.https://doi.org/10.1016/j.adolescence.2012.02.016

Guo, Y., Luo, S., & Tan, Y. (2023). Purpose in life and academic performance: *Grit* mediation among Chinese college students. *Journal of Psychology in Africa*, *33*(1), 69-74. https://doi.org/10.1080/14330237.2023.2175970

Guzman, J. L., & Doronio, R. (2025). Classroom Environment and Learning Styles As Predictors of Student Engagement. *International Journal of Interdisciplinary Viewpoints*, *1*(4), 467-493. https://doi.org/10.64612/ijiv.v1i4.29

Hernández, E H., Moreno-Murcia, J A., Cid, L., Monteiro, D., & Rodrigues, F. (2020,). Passion or Perseverance? The Effect of Perceived Autonomy Support and *Grit* on Academic Performance in College Students. *Multidisciplinary Digital Publishing Institute, 17(6)*, 2143-2143. https://doi.org/10.3390/ijerph17062143

Hodge, B., Wright, B., & Bennett, P. (2018). The role of *Grit* in determining engagement and academic outcomes for university students. *Research in Higher Education*, *59*(4), 448-460. https://doi.org/10.1037/EDU0000153

Holman, A. C. (2022). Considerații cu privire la analiza statistică a datelor. În Diaconu-Gherasim, L.R., Măirean, C., & Curelaru, M. (coord), *Metode cantitative de cercetare: designuri și aplicații în științele sociale* (pp. 388-406). Iași: Editura Polirom.

Hou, X. L., Becker, N., Hu, T. Q., Koch, M., Xi, J. Z., & Mõttus, R. (2022). Do *Grit*tier people have greater subjective well-being? A meta-analysis. *Personality and Social Psychology Bulletin*, *48*(12), 1701-1716. https://doi.org/10.1177/01461672211053453

Ismayilova, T. (2025). Improving cognitive activity in higher schools: active learning and strategies for the development of critical, logical and creative thinking. *Scientific Works., 92*(4), 216–218. https://doi.org/10.69682/arti.2025.92(4).216-218

Jachimowicz, J. M., Wihler, A., Bailey, E. R., & Galinsky, A. D. (2018). Why *Grit* requires perseverance and passion to positively predict performance. *Proceedings of the National Academy of Sciences*, *115*(40), 9980-9985. https://doi.org/10.1073/pnas.1803561115

Jerrim, J. (2022). The power of positive emotions? The link between young people's positive and negative affect and performance in high-stakes examinations. *Assessment in Education: Principles, Policy & Practice*, *29*(3), 310-331. https://doi.org/10.1080/0969594X.2022.2054941

King, K. (2020). Interventions to enhance behavioral engagement. In *Student engagement: Effective academic, behavioral, cognitive, and affective interventions at school* (pp. 133-156). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-37285-9_8

Krippendorff, K. (2019). Content Analysis: An Introduction totions. https://doi.org/10.4135/9781071878781.

Lagos, H. O., & Magallanes , C. I. (2020). Stress and Coping Strategies of High School Teachers of Antique Diocesan Catholic Schools. *Philippine Social Science Journal, 3(2),* 83-84. https://doi.org/10.52006/main.v3i2.175

Liu, J. (2021). The Role of *Grit* in Students' L2 Engagement in the English as a Foreign Language Classroom. *Frontiers in Psychology*, *12*, 749844. https://doi.org/10.3389/FPSYG.2021.749844

López-Aguilar, D., Álvarez-Pérez, P. R., & Garcés-Delgado, Y. (2021). El engagement académico y su incidencia en el rendimiento del alumnado de grado de la Universidad de La Laguna. *RELIEVE. Revista Electrónica de Investigación y Evaluación Educativa*, *27*(1).

Mason, H. D. (2018). *Grit* and academic performance among first-year university students: A brief report. *Journal of Psychology in Africa*, *28*(1), 66-68. https://doi.org/10.1080/14330237.2017.1409478

Matos, B. C., Ribeiro, F. M. S., Carlos, V., & Fardilha, M. (2023). Incorporation of different and purposeful students' engagement strategies to achieve deep learning experiences. *INTED Proceedings*. https://doi.org/10.21125/inted.2023.1255

Matos, B., Gonçalves, L., Rodrigues, M., Ribeiro, F., Carlos, V., & Fardilha, M. (2023). Incorporation of different and purposeful students' engagement strategies to achieve deep learning experiences. *INTED Proceedings*. https://doi.org/10.21125/inted.2023.1255

Muñiz, F. B. (2024). Explorando la Resiliencia: Un Estudio Cualitativo Sobre *Grit* en Profesores del Sector Rural (*Master's thesis, Pontificia Universidad Catolica de Chile (Chile*)). https://doi.org/10.7764/tesisuc/ing/89132

Napitupulu, E. H., & Susanti, A. E. (2023). *Mengupayakan keaktifan belajar siswa dengan penerapan metode tanya jawab. [Promoting students' learning engagement with the application of the question and answer method]*. *3*(2), 32–46. https://doi.org/10.19166/kairos.v3i2.7151

Ningsih, S. (2025). Konstruk Keterlibatan Siswa Pada Proses Pembelajaran Di Kelas. [The Construction of Student Engagement in the Learning Process in the Classroom]. *Educatio*, *20*(1), 11-17.https://doi.org/10.29408/edc.v20i1.26765

Opariuc-Dan, C. (2009). S*tatistică aplicată în ştiinţele socio-umane. Noţiuni de bază: statistici univariate.* Cluj-Napoca: Editura ASCR.

Pallant, J. (2020). *Ebook: SPSS Surival Manual: A Step by Step Guide to Data Analysis using IBM SPSS*. McGraw-Hill Education (UK).

Park, D., Yu, A., Baelen, R N., Tsukayama, E., & Duckworth, A L. (2018). Fostering *Grit*: Perceived school goal-structure predicts growth in *Grit* and grades*. Contemporary Educational Psychology, 55,* 120-128. https://doi.org/10.1016/j.cedpsych.2018.09.007

Pohl, A. J. (2020). Strategies and interventions for promoting cognitive engagement. In *Student engagement: Effective academic, behavioral, cognitive, and affective interventions at school* (pp. 253-280). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-37285-9_14

Popandopulo, A. S., & Kudysheva, A. A. (2019). Diagnostics of Metacognitive Involvement in the Activities of Students in the Learning Process at a University. *ARPHA Proceedings*, 1145-1156. https://doi.org/10.3897/AP.1.E1088

Popuşoi, S. (2022). Metode statistice asociative. În Diaconu-Gherasim, L.R., Măirean, C., & Curelaru, M. (coord), *Metode cantitative de cercetare: designuri şi aplicaţii în ştiinţele sociale* (pp. 407-423). Iaşi: Editura Polirom.

Putri, S. S. S., & Ingarianti, T. M. (2024). Relationship between *Grit* and subjective career success in teacher. *Jurnal Ilmiah Psikologi Terapan, 12(2),* 107-113. https://doi.org/10.22219/jipt.v12i2.31513

Qurratuaini, Y. A., Zamralita, Z., & Saraswati, K. D. (2022). The role of social support and *Grit* towards academic engagement among college students. In *3rd Tarumanagara International Conference on the Applications of Social Sciences and Humanities (TICASH 2021)* (pp. 1567-1572). Atlantis Press. https://doi.org/10.2991/assehr.k.220404.252

Rovan, D., Ljubin Golub, T. & Petričević, E. (2016). Construction and validation of Academic Engagement Scale. Unpublished manuscript. Department of Psychology, Faculty of Teacher Education, University of Zagreb, Croatia.

Sá, M. J. (2023). Student Academic and Social Engagement in the Life of the Academy—A Lever for Retention and Persistence in Higher Education. *Education Sciences*, *13*(3), 269. https://doi.org/10.3390/educsci13030269

Sajib, M. S. H. (2024, June). Determining Factors and Correlation of Factors Influential for Student Engagement. In *2024 15th International Conference on Computing Communication and Networking Technologies (ICCCNT)* (pp. 1-6). IEEE. https://doi.org/10.1109/icccnt61001.2024.10724770

Sava, F. A. (2011). *Analiza datelor în cercetarea psihologică*. Cluj-Napoca: Editura ASCRED.

Skinner, E. A., & Pitzer, J. R. (2012). Developmental dynamics of student engagement, coping, and everyday resilience. In *Handbook of research on student engagement* (pp. 21-44). Boston, MA: Springer US.https://doi.org/10.1007/978-1-4614-2018-7_2

Sobreira, J. G., Oliveira, E. de L., Lima, L. B. de O., & Frazão, M. A. (2025). A relação entre a ansiedade e desempenho acadêmico em universitários. *Contribuciones a Las Ciencias Sociales*, *18*(5), e18262. https://doi.org/10.55905/revconv.18n.5-401

Tholibon, D. A., Nujid, M. M., Mokhtar, H., Rahim, J. A., Rashid, S. S., Saadon, A., Tholibon, D, & Salam, R. (2022). The factors of students' involvement on student-centered learning method. *International Journal of Evaluation and Research in Education*, *11*(4), 1637-1646.https://doi.org/10.3897/AP.1.E1088

Tiwari, S., & Verma, K. (2023). A Critical Study of Angela Duckworth's *Grit*: The Power of Passion and Perseverance. *Research Journal of Humanities and Social Sciences, 14(3*), 152-154. https://doi.org/10.52711/2321-5828.2023.00031

Trowler, V., & Trowler, P. (2011). Conceptual overview of Student Engagement. *Leadership Foundation for Higher Education*. https://eprints.lancs.ac.uk/id/eprint/61686/

Waheed, Z., Tham, J., & Ooi, B. K. (2025). The Impact of Self-Regulated Learning Strategies on Academic Performance: A Systematic Review. *Social Science and Human Research Bulletin.*, *02*(08). https://doi.org/10.55677/sshrb/2025-3050-0803

Wang, X., Jantharajit, N., & Srikhao, S. (2025). Unlocking Learning Potential: The Impact of Integrated Cognitive Strategies on Vocational Students' Academic Performance. *Journal of Education and Learning*, *15*(1), 208. https://doi.org/10.5539/jel.v15n1p208

Wati, M. (2017). Being a Role Model to Motivate Students. I*n 1st Yogyakarta International Conference on Educational Management/Administration and Pedagogy (YICEMAP 2017)* (pp. 124-127). Atlantis Press. https://doi.org/10.2991/yicemap-17.2017.20

Wilson, D., Wright, J., & Summers, L. (2021). Mapping patterns of student engagement using cluster analysis. *Journal for STEM Education Research*, *4*(2), 217-239. https://doi.org/10.1007/s41979-021-00049-z

Wu, Y., & Fernando, Y. (2023). Development of Student's Innovation Skills through Extracurricular Activities. *Journal of E-business and Management Science*, *1*(2), 170-180. https://doi.org/10.61098/jems.v1i2.106

Yang, L., Yan, Z., Zhang, D., Boud, D., & Datu, J. A. (2023). Exploring the roles of academic self-concept and perseverance of effort in self-assessment practices. *Assessment in education: principles, policy & practice*, *30*(2), 104-129. https://doi.org/10.1080/0969594X.2023.2191161

Zhao, Y., Zheng, Z., Pan, C., & Zhou, L. (2021). Self-esteem and academic engagement among adolescents: A moderated mediation model. *Frontiers in psychology*, *12*, 690828.https://doi.org/10.3389/fpsyg.2021.690828