

Predictive Effect of Grit Personality on Academic Engagement Among Undergraduate Physical Education Students: The Mediating Role of Resilience

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Abstract

The primary objective of this study was to examine the mediating effect of resilience in the relationship between GRIT personality and academic engagement among undergraduate students majoring in physical education. A study was conducted using a non-experimental, cross-sectional, correlational-cause design. The study included a total of 1164 Mexican students, with an average age of 21.21 years (standard deviation = 3.26). The sample consisted of 30.0% female participants, 69.6% male participants, and 0.4% participants who identified as others. The researchers utilised the GRIT personality, resilience, and academic engagement scales in their study and performed a structural equation analysis incorporating latent variables. The findings derived from the structural equation model indicate a positive association between perseverance of effort and both behavioural and emotional academic engagement, while also revealing a negative correlation between perseverance of effort and behavioural disaffection. Moreover, the presence of resilience in students is associated with a notable increase in their behavioural and emotional involvement, while concurrently leading to a decrease in emotional disengagement. The phenomenon of interest consistency has been found to have predictive value for both emotional and behavioural disaffection.

Keywords: University Teaching, Physical Education, Perseverance, Interest, Disaffection.

Introduction

The current state of our society is considered to be unpredictable and is thought to have transitioned into a period marked by uncertainty, volatility, complexity, and ambiguity (Ruksana & Ahmed, 2019). This phenomenon is evident among university students who experience persistent pressure to secure employment in an era characterised by labour market instability while simultaneously pursuing their academic studies and making preparations for their future professional endeavours (Jeon, Lee, & Lee, 2022). The aforementioned expectations have the potential to result in the gradual development of burnout among students over the course of their academic journey (Meier & Schmeck, 1985). In this context, resilience emerges as a crucial factor in effectively addressing and overcoming academic burnout (Wu, Pease, & Maker, 2019). Moreover, academic engagement is considered a crucial element in mitigating burnout (Jeon et al., 2022), evaluating the efficacy of higher education, enhancing the academic aptitude of undergraduate students (Kim, 2015), and fostering work entrepreneurship and entrepreneurial performance (Eskreis-Winkler et al., 2014; Garcia-Martinez, Landa, & León, 2021).

Current research has demonstrated that there is a positive

correlation between higher levels of academic engagement among students and various outcomes, including increased satisfaction, improved academic performance, and a higher likelihood of completing their studies (Gao, Jiang, & Tang, 2020; Kim & Kim, 2021). Furthermore, it has been established that teachers play a significant role in fostering academic engagement among university students (Murcia & Santamaría, 2021). Research has demonstrated that academic engagement significantly impacts successful integration into society and the university environment, thereby reducing the likelihood of academic dropout (Schaufeli et al., 2002). In contrast, it has been observed that students with low engagement tend to experience heightened levels of dissatisfaction and are more prone to academic dropout (Gao et al., 2020). Hence, a considerable number of scholars specialising in the realm of education assert that the examination of academic engagement has emerged as a pertinent factor warranting further investigation (Berry & Hammer, 2018).

Literature Review

One theoretical framework extensively examines academic engagement by considering two key dimensions: classroom engagement and classroom disaffection. Each of these factors, in turn, comprises two dimensions: emotional and behavioural.

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These dimensions are interconnected with the learning process, individually consistent across individuals, and consist of external factors that do not exert influence on each other (Skinner et al., 2008). The conceptualization of academic engagement is supported by the Self-Determination Theory, which posits that emotions play a role in driving classroom behaviours, referred to as emotional engagement. Additionally, the theory suggests that interest and enthusiasm foster effort and persistence (i.e., behavioural engagement) (Ryan & Deci, 2017). Emotional engagement encompasses the range of positive and negative emotional reactions exhibited by students towards the educational experience and activities within the classroom setting (Manwaring et al., 2017).

In contrast, behavioural engagement pertains to the enduring commitment, focused concentration, and diligent exertion exhibited throughout the commencement and completion of scholastic endeavours, including attending lectures and actively engaging in educational exercises while adhering to societal and institutional norms (Sinval et al., 2021). There is a correlation between physical participation and behavioural engagement, as well as emotional participation and psychological engagement AND These forms of engagement are essential for the acquisition of new skills and knowledge during the learning process (Janosz, 2012). Furthermore, it is worth noting that several scholars have drawn attention to the adverse aspects of academic involvement, specifically disaffection (Skinner, Kindermann, & Furrer, 2009). Disaffection, as defined by Curran and Standage (2017), encompasses the emergence of emotional and behavioural indicators that signify a lack of motivation and inadequate adjustment.

Thus, disaffection encompasses both emotional disaffection and behavioural disaffection, as previously mentioned. Emotional disaffection pertains to the subjective experiences of boredom, anxiety, and frustration within the educational setting, while behavioural disaffection encompasses behaviours characterised by passivity and limited student engagement (Skinner et al., 2008). Thus, students who exhibit high levels of engagement are more likely to perceive themselves as possessing a greater capacity for learning (Casas Moreno & Blanco Blanco, 2017). Additionally, these students tend to experience higher levels of energy (Schaufeli, 2013). Moreover, students with high engagement demonstrate faster response times to new commands, enhanced concentration, and a greater overall effort in their academic pursuits (Bakker, 2011). However, according to Lippmann (2013), there is a viewpoint that suggests the absence of scholarly involvement among students hinders their ability to attain learning outcomes of superior quality.

Recent research has elucidated the correlation between academic engagement and resilience (López-García et al., 2022; Turner, Scott-Young, & Holdsworth, 2017). Neufeld, Mossière, and Malin (2020) suggest that resilience is a fundamental attribute

that enables individuals to effectively navigate and manage challenging circumstances. Specifically, the authors highlight its significance as a strategy employed to enhance the overall welfare of university students. The cultivation of academic resilience in college students involves equipping them with cognitive fortitude (Rojas, 2015). Students who have cultivated resilience are more inclined to achieve academic success and demonstrate a greater ability to surmount challenges (Wu et al., 2019).

Additionally Morales (2010), found that these students exhibit enhanced persistence and future orientation in comparison to their counterparts who have not developed resilience. Research has demonstrated that academic engagement plays a mediating role in the relationship between resilience and two key variables among university students: life satisfaction and academic performance (García-Martínez et al., 2021). However, it is our belief that resilience may have even greater significance as a predictor of academic engagement. Specifically, we argue that students must first develop the ability to effectively navigate and overcome stressful situations in order to cultivate positive emotions within the classroom (i.e., emotional engagement).

Subsequently, this emotional engagement will lead to behavioural changes characterised by increased interest, enthusiasm, effort, and persistence (i.e., behavioural engagement). In addition, there is a positive correlation between resilience and elevated GRIT, which is considered an independent characteristic of this particular personality trait (Kannangara et al., 2018). Resilience is regarded as a crucial element of the GRIT personality by multiple researchers (Duckworth et al., 2007; Duckworth & Quinn, 2009). Nevertheless, there is a dearth of research regarding the correlation between these variables, necessitating further investigation into their interaction (Kannangara et al., 2018). This study aims to examine the role of resilience as a mediating factor in the relationship between the GRIT personality trait and academic engagement.

The GRIT personality trait, also referred to as determination, is characterised by the combination of perseverance and passion required to attain long-term objectives. It encompasses the ability to sustain interest and effort in the face of challenges that inevitably arise during the course of pursuing established goals, irrespective of the difficulties, monotony, and past experiences of failure (Tortul, Daura, & Mesurado, 2020). Likewise, determination can be conceptualised as a theoretical framework comprising two distinct components (Duckworth, 2016): the first being perseverance of effort (i.e., working hard despite setbacks and difficulties), and the second being consistency of interest (i.e., the tendency to maintain the goals and interests that the students have set for themselves).

The attribute of determination is a crucial factor among students, as it has been found to be a significant predictor of high levels of academic engagement (Mason, 2021), superior academic performance, and reduced rates of academic dropout

(Duckworth et al., 2007; Eskreis-Winkler et al., 2014). According to a recent study, there is a positive association between determination and academic engagement. Specifically, the study found that both perseverance of effort and consistency of interest were significant predictors of academic engagement (Tang et al., 2022). With respect to the association between the dimensions of determination and academic engagement discussed earlier, it is worth noting that the sole investigation conducted on this topic has been carried out by Datu, Valdez, and King (2016). The present study revealed that both dimensions of determination exhibited a negative and significant association with behavioural disaffection and emotional disaffection. However, only perseverance demonstrated a positive and significant relationship with behavioural engagement and emotional engagement.

The Significance of the Study

After conducting a comprehensive examination of the existing scholarly literature, it has been observed that the subject of academic engagement has garnered significant attention in the field of educational research in recent times (Mystkowska-Wiertelak, 2022). This heightened interest can be attributed to its considerable significance in various domains, including the attainment of academic success (Gao et al., 2020; Kim & Kim, 2021) and the reduction of academic attrition (Schaufeli et al., 2002). Multiple studies have established a connection between academic engagement and the personality trait known as GRIT (Hodge, Wright, & Bennett, 2018; Tortul et al., 2020), as well as resilience (López-García et al., 2022), which is acknowledged as a crucial element of determination (Duckworth et al., 2007; Duckworth & Quinn, 2009).

Nevertheless, there is a lack of scientific research that has specifically examined the crucial aspect of investigating the mediating role of resilience in relation to the two determining factors and the four dimensions of academic engagement. Furthermore, there is a dearth of literature on this topic in Mexico, a nation characterised by concerning levels of university student attrition (Álvarez-Pérez, López-Aguilar, & Garcés-Delgado, 2021). Further investigation is required to understand the relationship between these variables and students' academic engagement. It is hypothesised that studying the correlation between determination dimensions and resilience, as well as the correlation between academic engagement dimensions, may contribute to enhancing academic achievement among university students and reducing academic burnout. Identifying the variables that mediate the relationship between academic engagement, resilience, and the GRIT personality is a challenging task, as there is a scarcity of studies available on this topic.

The Purpose of the Study

Therefore, the primary aim of this research is to examine the

mediating role of resilience in the relationship between GRIT personality traits, specifically perseverance of effort and consistency of interest, and academic engagement. Academic engagement encompasses behavioural engagement, emotional engagement, behavioural disaffection, and emotional disaffection. The theoretical assumptions of various currents were considered when testing the hypothetical model depicted in Figure 1. The subsequent hypotheses were formulated: The first hypothesis claims that perseverance in effort is a predictor of resilience, behavioural engagement, and emotional engagement. The second hypothesis suggests that perseverance in effort has a negative relationship with behavioural and emotional disaffection. While the third hypothesis proposes that consistency of interest predicts resilience, behavioural engagement, and emotional engagement, Whereas the fourth hypothesis suggests that consistency of interest has a negative relationship with behavioural and emotional disaffection, Likewise, the fifth hypothesis asserts that resilience plays a positive mediating role in the relationship between perseverance in effort and behavioural and emotional engagement. The sixth hypothesis suggests that resilience plays a negative mediating role in the relationship between perseverance in effort and behavioural and emotional disaffection. While the seventh hypothesis proposes that resilience plays a positive mediating role in the relationship between consistency of interest and behavioural and emotional engagement, Finally, the eighth hypothesis suggests that resilience plays a negative mediating role in the relationship between consistency of interest and behavioural and emotional disaffection. The study employed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) initiative as a framework for study description (von Elm et al., 2008).

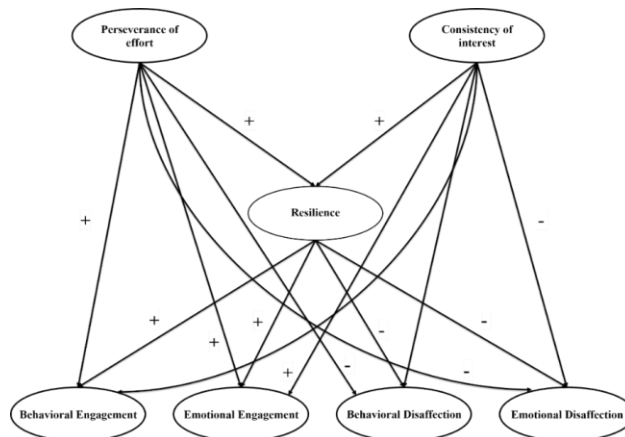


Figure 1: Hypothesized Model with the Expected Correlations.

Method

Design and Sample

The study employed an observational, descriptive, cross-sectional, and non-randomised research design. The study included individuals who were enrolled as students at the three

campuses of the Faculty of Sport at the Autonomous University of Baja California, namely Campus Ensenada, Campus Mexicali, and Campus Tijuana. The inclusion criteria for this study were as follows: (i) enrolment in the Bachelor's degree programme in Physical Education at the specified faculty and university; (ii) provision of consent for the utilisation of the provided data; (iii) completion of the data collection form in a thorough and accurate manner. A preliminary analysis was conducted to determine the required sample size for the study's objective. This analysis took into account a structural equation model (SEM) consisting of seven latent variables and 28 observable variables. The analysis was conducted using the *Free Statistics Calculator* v.4.0 software (Soper, 2022) and a minimum of 1141 participants was calculated to detect effect sizes (f^2) =.16, with a statistical power of .95 % and a significance level of α =.05.

The study involved a cohort of 1164 students. It is important to emphasise that, as indicated by the transparency portal of the three campuses of the Faculty of Sport at the Autonomous University of Baja California, the overall student population (N) consists of 1663 individuals enrolled in the Bachelor's degree programme in Physical Activity and Sport. This translates into a participation of 70 % of the study population (N), so the sample is deemed representative with a confidence level of 99 % and a margin of error of 2.08 %.

Instruments

Grit-O Scale (GS). This study used the Mexican version validated by Marentes-Castillo, Zamarripa, and Castillo (2019) of the *Grit Scale* by Duckworth et al. (2007). This instrument contains 12 items to measure the GRIT personality in school by using two subscales that measure *consistency of interest* (6 items) and *perseverance of effort* (6 items). Answers were collected using a 5-point Likert scale ranging from 1 (*not at all like me*) to 5 (*just like me*). The items pertaining to the dimension of consistency of interest were formulated in an inverse manner, resulting in the need to invert the obtained results for the purpose of analysis (Marentes-Castillo et al., 2019). A CFA (*Confirmatory Factor Analysis*) of the scale's factorial structure was conducted with the sample of this study, yielding acceptable goodness-of-fit indices: χ^2/df (chi-square/degrees of freedom) =4.81, p <.001; CFI (*Comparative Fit Index*) =.99; TLI (*Tucker-Lewis Index*) =.97; RMSEA (*Root Mean Square Error of Approximation*) =.057 [90% Confidence Interval (CI)=.040;.076; P_{close} =.228]; SRMR (*Standardized Root Mean Square Residual*) =.037. Subscales showed the following reliability values: *consistency of interest*, McDonald's ω =.81; *perseverance of interest*, ω =.77.

Resilience (RES). This study used the version adapted to the Mexican context by Córdova Flores (2019) from the original version by Sinclair and Wallston (2004). This instrument contains four items to measure resilience at school. Answers were collected using a 5-point Likert scale ranging from 1 (*it does not*

describe me at all) to 5 (*it describes me very accurately*). For this study, CFA goodness-of-fit indices were acceptable: χ^2/df =3.48, p <.001; CFI =.99; TLI =.99; RMSEA =.046 (90 %CI =.012;.086; P_{close} =.491), SRMR =.014. Reached reliability was: ω =.78.

Academic engagement (CA). This study used the scale adapted to the Mexican context by Rodríguez-Medellín et al. (2020) based on the original version by Chi, Skinner, and Kindermann (2010). This scale contains 12 items grouped into four subscales: *behavioural engagement* (3 items), *emotional engagement* (3 items), *behavioural disaffection* (3 items) and *emotional disaffection* (3 items). Answers were collected using a Likert scale ranging from 1 (*false*) to 5 (*true*). For this study, the CFA goodness-of-fit indices were acceptable: χ^2/df =4.48, p <.001; CFI =.96; TLI =.94; RMSEA =.055 (90 %CI =.047;.063; P_{close} =.167), SRMR =.036. Reached reliability was: behavioural engagement, ω =.69; emotional engagement, ω =.69; behavioural disaffection, ω =.57; emotional disaffection, ω =.71.

Procedure

The researcher reached out to the director of the Faculty of Sport at the Autonomous University of Baja California, who oversees the Ensenada, Mexicali, and Tijuana campuses. The purpose of the research was communicated to the director, and permission was sought to administer the questionnaires. In March 2022, an online questionnaire was administered in person in the computer room of the institution following the granting of authorization. The participants were instructed on the proper utilisation of the scales and were provided with information regarding the significance of the research. They were assured that their responses would remain anonymous and that their decision to participate or not would have no impact on their scores. Additionally, they were informed of their right to withdraw from the study at any given point. Prior consent was obtained from all participants for the use of their responses in the study. The research protocol received approval from the Bioethics Committee at the University of Almeria (Ref: UALBIO2021/009).

Statistical Analysis

A structural equation model analysis (SEM) with latent variables was conducted to analyse how GRIT personality is associated with resilience and academic engagement in Mexican students. Following Kline (2016), the two-step model was used. In the first step, known as the measurement model, the robustness of the bidirectional relationships between the variables that form the model was analysed. In the second step, the predictive effects between the variables were examined. The SEM was controlled by the sex and campus of origin variables, given that the students belong to three different university campuses. The goodness-of-fit indices of the models, including the CFA of the study instruments, were assessed based on: χ^2/df , CFI, TLI, RMSEA with a confidence interval of 90 % (CI), and SRMR. For the χ^2/df ratio, values <2.0 or <5.0 are deemed either excellent (Tabachnick

& Fidell, 2019) or acceptable (Hu & Bentler, 1999); for CFI and TLI, values >.95 are considered excellent, whereas .90 and .95 are considered acceptable; for RMSEA and SRME, values <.06 are considered excellent and <.08 are deemed acceptable (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004).

Due to the lack of multivariate normality for the SEM (Mardia's coefficient =100.38; $p<.001$), the maximum likelihood model with the *bootstrapping* procedure was used for 5000 re-samplings (Kline, 2016). The internal consistency of each scale was evaluated using McDonald's ω (McDonald, 1970), where values >.70 are deemed acceptable. In this study, three dimensions of academic engagement (i.e., behavioural engagement, emotional engagement and behavioural disaffection) showed reliability levels below .70; however, according to Taylor, Ntoumanis, and Standage (2008), these can be considered marginally acceptable due to the small number of items (three) of each factor.

Results

Table 1

Descriptive statistics and correlations among variables.

Variable	Range	M	SD	Q1	Q2	ω	2	3	4	5	6	7
1. Consistency of interest	1-5	2.85	.88	-.09	-.33	.81	-.04	-.05	.05	-.01	-.16**	-.20**
2. Perseverance of effort	1-5	3.71	.74	-.33	.02	.77	-	.47**	.34**	.28**	-.12**	-.15**
3. Resilience	1-5	3.98	.75	-.61	.24	.78	-	-	.39**	.40**	-.13**	-.22**
4. Behavioral engagement	1-5	3.90	.67	-.35	-.12	.69	-	-	-	.49**	-.40**	-.34**
5. Emotional engagement	1-5	4.24	.67	-1.05	1.55	.69	-	-	-	-	-.19**	-.47**
6. Behavioural disaffection	1-5	2.41	.89	.37	-.30	.57	-	-	-	-	-	.41**
7. Emotional disaffection	1-5	1.90	.78	1.05	1.45	.71	-	-	-	-	-	-

Note. **Correlation is significant at level .01; *Correlation is significant at level .05; M=Mean; SD=Standard Deviation; Q1=Skewness; Q2=Kurtosis; ω =McDonald's Omega.

Main Analysis

The SEM showed acceptable goodness-of-fit indices during step 1: $\chi^2/df=2.87$, $p<.001$; CFI=.95; TLI=.94; RMSEA=.040(90 %CI=.036;.044; $p_{close}=.999$), SRMR=.040. During step 2, the hypothesized SEM yielded a similar and acceptable fit: $\chi^2/df=2.87$, $p<.001$; CFI=.95; TLI=.94; RMSEA=.040(90 %CI=.036;.044; $p_{close}=.999$), SRMR=.040. The regression model incorporated the variables of sex and campus of origin as predictors, resulting in an explained variance of 32% for behavioural engagement, 23% for emotional engagement, 17% for behavioural disaffection, 13% for emotional disaffection, and 29% for resilience (Figure 2). The relationships between the GRIT personality variables, resilience, and the four dimensions of academic engagement are depicted in Figure 2 and summarised in Table 3.

Figure 2 outlines the SEM and demonstrates that the consistency of interest of GRIT personality has a positive and significant direct relationship with a dimension of academic engagement: behavioural engagement ($p=.004$); whereas its relationships with behavioural disaffection ($p<.001$) and emotional disaffection ($p<.001$) are significant and negative. On the other hand, the perseverance of effort of GRIT personality shows direct, positive and significant relationships with resilience ($p<.001$) and with

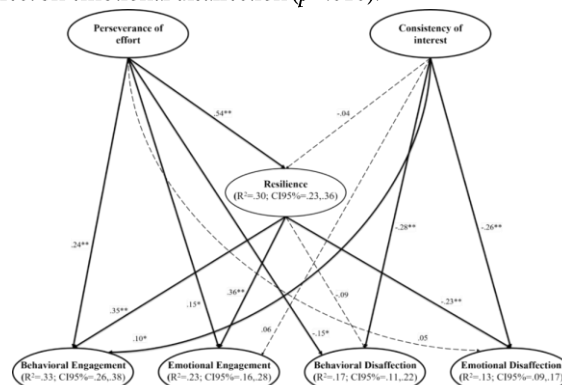
Participants

Participants were 1164 students (30.0 % women; 69.6 % men; 0.4 % other) from the three campuses of the Faculty of Sport of the Autonomous University of Baja California (19.8% from Campus Ensenada; 30.7% from Campus Mexicali; 49.6% from Campus Tijuana), aged between 17 and 50 years old ($M=21.21$; $SD=3.26$). The responses included in the study did not exhibit any instances of lost values. In addition to the overall sample, a total of 29 questionnaires were excluded from the analysis due to incorrect completion, while an additional 14 questionnaires were excluded as the respondents did not provide their consent to participate in the research.

Preliminary Analysis

Descriptive statistics and correlations among the different variables are shown in Table 1.

two dimensions of academic engagement: behavioural engagement ($p<.001$) and emotional engagement ($p=.005$), whereas the direct relationship with behavioural disaffection is negative and significant ($p=.010$). Moreover, resilience has a positive and significant direct effect on behavioural engagement ($p<.001$) and emotional engagement ($p<.001$), and a negative effect on emotional disaffection ($p=.010$).



Note: ** $p<.01$; * $p<.05$. R^2 =Explained variance; CI=Confidence interval. The dashed lines represent non-significant relationships.

Figure 2: Predictive relationships of perseverance of effort and consistency of interest on academic engagement through the mediating role of resilience.

Concerning mediation, resilience acts as a positive and significant mediating variable between perseverance of effort and behavioural engagement ($p=.001$), and between perseverance of effort and emotional engagement ($p=.001$), whereas the mediation effect between perseverance of effort and behavioural disaffection ($p=.124$) is not significant. However, the role of

resilience as a mediating variable is noteworthy, as it enhances the total effects of perseverance of effort and behavioural ($p=.001$) and emotional engagement ($p=.001$) among university students. Furthermore, the CI (95 %) of R^2 can be attested in Figure 2, thereby confirming that these can be considered effect size measurements (Dominguez-Lara, 2017).

Table 2

Estimation of Significant Standardized Parameters and Statistics of the Mediation Model.

Independent variable	Dependent variable	Mediator	β	SE	95 % CI	
					Inf	Sup
Direct effects						
Consistency of interest	Behavioural engagement		.11*	.04	.04	.17
Consistency of interest	Behavioural disaffection		-.27**	.05	-.34	-.19
Consistency of interest	Emotional disaffection		-.26**	.04	-.33	-.19
Perseverance of effort	Resilience		.54**	.04	.48	.61
Perseverance of effort	Behavioural engagement		.24**	.06	.14	.33
Perseverance of effort	Emotional engagement		.15*	.06	.05	.26
Perseverance of effort	Behavioural disaffection		-.15*	.06	-.24	.05
Resilience	Behavioural engagement		.35**	.05	.27	.44
Resilience	Emotional engagement		.36**	.06	.26	.45
Resilience	Emotional disaffection		-.23**	.06	-.32	-.14
Indirect effects						
Perseverance of effort	Behavioural engagement	Resilience	.19*	.03	.14	.25
Perseverance of effort	Emotional engagement	Resilience	.19*	.04	.14	.26
Perseverance of effort	Behavioural disaffection	Resilience	-.05	.03	-.10	.00
Total effects						
Perseverance of effort	Behavioural engagement		.43*	.04	.35	.50
Perseverance of effort	Emotional engagement		.35*	.05	.27	.43
Perseverance of effort	Behavioural disaffection		-.20*	.05	-.27	-.12

Note. β =Estimation of standardized parameters; SE=standard error; 95 % CI=95% confidence interval; Inf=Inferior limit of 95 % CI; Sup=Superior limit of 95% CI; ** $p<.01$; * $p<.05$.

Discussion

The primary objective of this research was to examine the role of resilience as a mediator in the relationship between GRIT personality traits, specifically perseverance of effort and consistency of interest, and academic engagement. Academic engagement was measured in terms of behavioural and emotional engagement, as well as behavioural and emotional disaffection. The primary findings indicate that the sustained exertion of effort has a favourable and direct impact on resilience, behavioural engagement, and emotional engagement. Conversely, it has an adverse and direct impact on behavioural disaffection. The presence of consistency in one's interests is found to have a significant and adverse impact on both behavioural disaffection and emotional disaffection, while also exhibiting a positive and direct influence on behavioural engagement. However, it is important to highlight the significant impact of resilience as a mediator, as it enhances the overall influence of perseverance in effort on behavioural engagement, emotional engagement, and emotional disaffection.

The findings of this study indicate that persistence of effort has a direct and positive correlation with both behavioural and emotional engagement in academic activities. These results align with previous research conducted by Datu et al. (2016). Furthermore, several studies have demonstrated that the persistence of effort is a significant predictor of academic

engagement when assessed in a unidimensional manner (Hodge et al., 2018; Tang et al., 2022; Tang et al., 2019; Teuber, Nussbeck, & Wild, 2021) or as a unidimensional construct of determination (Hodge et al., 2018; Tortul et al., 2020). However, we have not come across any additional research investigating the associations between the dimensions of determination and the dimensions of academic engagement as proposed by Skinner et al. (2008), except for the aforementioned study conducted by Datu et al. (2016). The results of our research may be attributed to the phenomenon wherein students' persistence and commitment positively influence their level of participation and active involvement in the learning process (Álvarez-Pérez & López-Aguilar, 2021). It has been observed that students who exhibit elevated levels of determination are capable of enhancing their emotional and cognitive states, thereby augmenting their motivation and enthusiasm for the learning process, ultimately leading to improved academic outcomes (Özhan, 2021). The findings presented in this study contribute valuable insights to the existing scientific literature, as the association between determination and students' academic engagement has not been extensively explored (Jeon et al., 2022).

The findings of this study indicate a significant relationship between consistency of interest and various behavioural and emotional outcomes. Specifically, the data collected demonstrated a negative association between consistency of interest and behavioural and emotional disaffection, while a positive

association was observed between consistency of interest and behavioural engagement. The findings reported in the scientific literature exhibited a tendency towards misrepresentation and inconsistency. [Datu et al. \(2016\)](#) also obtained comparable findings, wherein they observed a negative association between consistency of interest and both behavioural and emotional disaffection. However, it is noteworthy that their study did not find consistency of interest to be a significant predictor of behavioural engagement. Previous research examining academic engagement as a unidimensional construct has reported a negative association between the level of interest and academic engagement ([Teuber et al., 2021](#)). However, previous studies have indicated a potential association between these variables, although the observed correlation was not statistically significant ([Tang et al., 2022](#); [Tang et al., 2019](#)).

In a similar manner, [Hodge et al. \(2018\)](#) found a statistically significant and positive association between determination and academic engagement, utilising unidimensional measurements for both variables. The existence of this controversy regarding the consistency of interest can be attributed to the fact that this particular dimension is unable to fully account for consistency of interest, unlike the other dimension, namely perseverance of effort. Perseverance of effort is considered the most appropriate and concise dimension for evaluating consistency of interest ([Schmidt et al., 2018](#)). Regarding this matter, prior studies have indicated that the sole factor that exhibits a significant correlation with both well-being ([Disabato, Goodman, & Kashdan, 2019](#)) and academic performance ([Credé, Tynan, & Harms, 2017](#)) is perseverance of effort. These findings demonstrate the independence of these dimensions from each other ([Credé et al., 2017](#); [Disabato et al., 2019](#)). Researchers need to look into the relationship between determinants and engagement outcomes, as previous scholars have noted ([Tang et al., 2022](#)). Consequently, our study aims to make a valuable contribution to the existing scientific literature. However, it is evident that further exploration is required to elucidate the association between consistency of interest and other variables.

Furthermore, the findings of this study demonstrate that the overall impact of perseverance of effort on three facets of academic engagement (i.e., behavioural engagement, emotional engagement and emotional disaffection), is amplified through the mediating role of resilience. Currently, there is a lack of research that has established a correlation between these variables. However, various studies have independently associated these variables with other factors. Previous studies have demonstrated a positive association between resilience and determination ([Kannangara et al., 2018](#)). Additionally, various scholars have emphasised the significance of resilience as a fundamental element of determination ([Duckworth et al., 2007](#); [Duckworth & Quinn, 2009](#)).

Conversely, resilience has been identified as a predictor of academic engagement ([López-García et al., 2022](#); [Turner et al.,](#)

[2017](#)). The observed correlation may be attributed to the phenomenon wherein students who consistently exert effort towards attaining their long-term objectives also acquire the capacity to confront adverse outcomes with psychological resilience, thereby surmounting any obstacles they may encounter. The persistence and future-oriented mindset of individuals are enhanced ([Morales, 2010](#)), leading to an increased likelihood of achieving academic success ([Wu et al., 2019](#)). Our study presents a novel perspective in contrast to previous research ([Credé et al., 2017](#); [Datu et al., 2016](#); [Disabato et al., 2019](#); [Hodge et al., 2018](#); [Tang et al., 2019](#); [Teuber et al., 2021](#)) by highlighting the positive impact of academic resilience on academic engagement.

Lastly, this study encompasses a range of strengths and limitations that we deem necessary to acknowledge. When considering strengths, it is important to emphasise the subject matter itself. This is supported by existing literature, which highlights academic engagement as a highly relevant variable in educational research. However, there is a lack of studies examining its relationship with determination. An additional notable aspect to emphasise is the considerable sample size of Mexican students who are actively pursuing a bachelor's degree in physical activity and sport within the geographical region of Baja California. Furthermore, a blinding procedure was implemented to ensure that both the participants and the researchers responsible for data processing and analysis were unaware of the group assignments. Regarding limitations, it is important to acknowledge the absence of sample randomization and the potential compromise of self-report instruments due to participant exaggeration, which may introduce a social-desirability bias.

Another constraint pertains to the utilisation of a cross-sectional research design, as it may impede the ability to effectively establish causal inferences. Because of these limitations, we believe that future studies should use a longitudinal or experimental framework to provide more real-world evidence for figuring out how the variables being studied work. In addition, it would be of interest to observe forthcoming researchers engaging in interviews with the participants, thereby gathering qualitative data that is essential for further elucidation and enhanced comprehension of the intricate dynamics between determination and academic engagement. In conclusion, it is our contention that future scholars should undertake an examination of the potential impact of educators on the motivation, perseverance, and scholastic involvement of tertiary-level learners, with particular emphasis on the context of burnout experienced by Mexican instructors ([Rojas Solís, Totolhua Reyes, & Rodríguez Vásquez, 2021](#)).

Conclusions

In the end, it can be argued that the sustained exertion of effort enhances both behavioural and emotional engagement in

academic pursuits while simultaneously reducing instances of behavioural disaffection. In addition, academic involvement is enhanced when students exhibit resilience, thereby reducing behavioural disaffection. On the contrary, the presence of consistency in one's interests has been found to have a negative impact on emotional and behavioural disaffection while positively influencing behavioural engagement. However, it is important to note that resilience does not play a mediating role in the relationship between these variables. In conclusion, it is imperative for educators to foster a culture of determination and dedication among college students, urging them to exhibit a proactive mindset in instances where their academic performance falls short of expectations. Moreover, students should be encouraged to engage in introspection, critically assessing their shortcomings and devising strategies to enhance their future academic endeavours.

Practical Implications

The findings of this study emphasise the significance of persistence, sustained interest, and resilience in fostering academic engagement among university students. Therefore, it is advisable for educators and educational institutions to endeavour towards enhancing individual attributes, interpersonal connections, and contentment with university curricula, recognising that these variables can significantly enhance motivation, adaptability in learning, and active involvement in academic pursuits while concurrently mitigating burnout (Jeon et al., 2022). A crucial element for educators is to create assignments that simulate or replicate scenarios that students may encounter in their internships or future professional endeavours, as this enhances their level of academic involvement (Hong et al., 2021).

Emphasising the significance of cultivating determination among university students is crucial. This can be achieved through workshops and comprehensive personal and professional training programmes, which aid students in fostering a growth mindset and elevating their expectations and engagement. Initially, these efforts can be directed

towards their university experiences, subsequently extending their application beyond educational settings (Jones & McConnell, 2022). This aspect holds significant importance, as research suggests that students who exhibit higher levels of engagement and determination are more inclined to cultivate work entrepreneurship and achieve better entrepreneurial performance (Eskreis-Winkler et al., 2014; Garcia-Martinez et al., 2021). By adopting this approach, the present societal need for students who possess exceptional personal and professional skills upon graduation can be effectively fulfilled (Palomer & López, 2016).

In conclusion, it is imperative for educational authorities to establish and cultivate psychoeducation groups aimed at enhancing levels of determination. These groups should focus on creating engaging learning environments that promote both enjoyment and knowledge acquisition among students (Martín-Moya et al., 2022; Özhan, 2021). Moreover, the content delivered in these groups should be designed to be novel and captivating (Baños et al., 2022). Hence, it is imperative for psychopedagogical domains to offer assistance to educators, enabling them to establish favourable learning environments that foster academic engagement among students. This support should be provided in a manner that does not compromise the essential requirements for attaining learning objectives. Teachers should be cognizant that their endeavours will yield positive outcomes (Pan, 2022).

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Appendix A

Personalidad GRIT

Esta escala cuenta con 12 ítems, donde se miden dos subescalas: Conciencia del interés (Del 1 al 6) y Perseverancia del esfuerzo (Del 7 al 12)

No se parece nada a mí (1)

No se parece tanto a mí (2)

Se parece algo a mí (3)

Casi igual a mí Igual a mí (4)

Igual a mí (5)

En una escala del 1 (Se parece mucho a mí = NO) al 5 (Igual a mí = yes), dinos si estás de acuerdo con las afirmaciones que se encuentran abajo. Te recordamos indicar tu respuesta con un círculo.

1. (Conciencia del interés) Frecuentemente me establezco una meta, pero después de un tiempo elijo perseguir una diferente
2. (Conciencia del interés) Algunas veces las nuevas ideas y proyectos me distraen de otras anteriores
3. (Conciencia del interés) Me intereso en nuevos objetivos cada mes
4. (Conciencia del interés) Mis intereses cambian año con año
5. (Conciencia del interés) He estado obsesionado con cierta idea o proyecto en un corto tiempo, pero después pierdo el interés
6. (Conciencia del interés) Tengo dificultad para mantenerme enfocado sobre proyectos que toman poco más de algunos meses para completarse
7. (Perseverancia del esfuerzo) He alcanzado objetivos que toman años de trabajo
8. (Perseverancia del esfuerzo) He superado contratiempos para conquistar un reto importante
9. (Perseverancia del esfuerzo) Yo acabo todo lo que comienzo
10. (Perseverancia del esfuerzo) Los contratiempos no me desaniman
11. (Perseverancia del esfuerzo) Trabajo arduamente
12. (Perseverancia del esfuerzo) Soy diligente. Nunca me rindo

Resiliencia

Esta escala cuenta con 4 ítems, donde se miden la resiliencia

En una escala del 1 (No me describe en absoluto) al 5 (Me describe muy bien)

1=No me describe en absoluto

2= Me describe poco

3= Ni poco ni mucho

4= Me describe bastante

5= Me describe muy bien

A continuación, encontrará una serie de afirmaciones que describen su comportamiento y acciones. Valore cada una de ellas en una escala de 1 a 5.

1. Busco formas creativas para cambiar las situaciones difíciles
2. Independientemente de lo que me suceda, creo que puedo controlar mis reacciones.
3. Creo que puedo crecer positivamente haciendo frente a las situaciones difíciles.
4. Busco activamente formas de superar las pérdidas que tengo en la vida.

Compromiso académico

Esta escala cuenta con 12 ítems, donde se miden cuatro subescalas: Compromiso (Compromiso conductual 1,2,3 y Compromiso Emocional 4,5,6) y Descontento (Afección Conductual 7,8,9 y Aversión Emocional 10,11,12)

1 = falso hasta

5 = cierto

Dinos qué tan ciertas son las siguientes afirmaciones referentes a las clases de educación física

1. *Pongo atención en la clase de educación física*
2. *Estudio para la clase de educación física*
3. *Trato de hacer lo más que pueda en la clase de educación física*
4. *Disfruto del tiempo que paso en la clase de educación física*
5. *Es emocionante cuando hago conexiones entre las ideas aprendidas en la clase de educación física*

6. *Es interesante el contenido que vemos en la clase de educación física*
7. *Es difícil asistir a la clase de educación física*
8. *Sólo hago lo suficiente para pasar en la clase de educación física*
9. *No hago mucho trabajo fuera de la clase de educación física*
10. *Son muy aburridas las clases del profesor de educación física*
11. *Me estresa la clase de educación física*
12. *Es una pérdida de tiempo estar en la clase de educación física*