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Scientific articles

Cansancio y regulación emocional como predictores del compromiso académico en estudiantes universitarios

Fatigue and emotional regulation as predictors of academic engagement in university students

Fadiga e regulação emocional como preditores do engajamento acadêmico em estudantes universitários

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Resumen

Los alumnos universitarios son proclives a experimentar fatiga emocional, y la observación de la regulación y del compromiso en la ejecución y asistencia en sus quehaceres académicos es sumamente importante. El objetivo del estudio fue analizar si la fatiga emocional y la regulación emocional predicen el compromiso académico en estudiantes de universidades sanmartinenses. La metodología correspondió a un enfoque cuantitativo, con un diseño descriptivo, correlacional y explicativo, con una muestra de 76 estudiantes universitarios entre 18 y 56 años con matrícula en universidades privadas y se utilizaron escalas validadas

y adaptadas al contexto. Los resultados demuestran que hay relación relevante entre cansancio y regulación emocional; pero, no se encontró relación entre la fatiga emocional y el compromiso académico, ni entre la regulación emocional y el compromiso. Asimismo, se observó una relación significativa entrela fatiga emocional y la supresión como dimensión de la fatiga emocional; además, el estudio de regresión lineal múltiple evidenció que el cansancio y regulación no son predictores de la variabilidad del compromiso académico. Estos hallazgos ofrecen una base para futuras investigaciones que profundicen en las interacciones complejas entre la fatiga emocional, la regulación emocional y el compromiso académico, con el objetivo de mejorar la satisfacción y el rendimiento en estudiantes universitarios.

Palabras clave: compromiso académico, cansancio, gestión emocional, estudiantes.

Abstract

University students are prone to experience emotional fatigue, and the observation of regulation and commitment in the execution and assistance in their academic tasks is extremely important. This study aimed to analyze whether emotional fatigue and emotional regulation predict academic engagement in students from San Martín universities. The methodology corresponded to a quantitative approach, with a descriptive, correlational and explanatory design, with a sample of 76 university students between 18 and 56 years old enrolled in private universities and validated scales adapted to the context were used. The results show that there is a relevant relationship between fatigue and emotional regulation; however, no relationship was found between emotional fatigue and academic commitment, nor between emotional regulation and commitment. Likewise, a significant relationship was observed between emotional fatigue and suppression as a dimension of emotional fatigue; in addition, the multiple linear regression study showed that fatigue and regulation are not predictors of variability in academic engagement. These findings serve a foundation for future research that delves into the complex interactions between emotional fatigue, emotional regulation, and academic engagement, with the goal of improving satisfaction and achievement in college students.

Keywords: educational engagement, tiredness, emotional management, students.

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Resumo

Estudantes universitários são propensos à fadiga emocional, e observar sua regulação e engajamento na execução e no cumprimento de suas tarefas acadêmicas é extremamente importante. O objetivo deste estudo foi analisar se a fadiga emocional e a regulação emocional predizem o engajamento acadêmico em estudantes de universidades de San Martín. A metodologia correspondeu a uma abordagem quantitativa, com delineamento descritivo, correlacional e explicativo, com uma amostra de 76 estudantes universitários entre 18 e 56 anos matriculados em universidades privadas e foram utilizadas escalas validadas e adaptadas ao contexto. Os resultados mostram que existe uma relação relevante entre fadiga e regulação emocional; Entretanto, não foi encontrada nenhuma relação entre fadiga emocional e engajamento acadêmico, nem entre regulação emocional e engajamento. Da mesma forma, foi observada uma relação significativa entre fadiga emocional e supressão como uma dimensão da fadiga emocional; Além disso, o estudo de regressão linear múltipla mostrou que fadiga e regulação não são preditores de variabilidade no comprometimento acadêmico. Essas descobertas fornecem uma base para pesquisas futuras que se aprofundem nas interações complexas entre fadiga emocional, regulação emocional e engajamento acadêmico, com o objetivo de melhorar a satisfação e o desempenho de estudantes universitários.

Palavras-chave: comprometimento acadêmico, fadiga, gestão emocional, alunos.

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Introduction

Currently, university education requires students to adjust to the relevant systems, with the consequence of being susceptible to emotional fatigue, and therefore prone to decreased interest and motivation in studies, which can lead to helplessness in university tasks. According to Tasayco and Pachao (2018), in Peru university dropout reaches 25%, due to economic factors, vocational uncertainty and difficulties in emotions, derived from fatigue and others. Given the presence of this emotional fatigue, it is relevant to analyze emotional regulation, since it helps students to reinterpret adverse contexts in a more positive way. The importance of investigating emotional regulation contributes to the definition of measures by higher institutions, in order to reduce emotional fatigue. Likewise, understanding their coping methods, such as *cognitive reappraisal* and *suppression*, are relevant, because they can

facilitate understanding how students handle academic demands (Gross and John, 2003). On the other hand, delving into the implication of commitment, in the execution and attendance of the academic agenda is important. According to Dávila (2021), there is a relevant relationship between fatigue and academic commitment; in this sense, the way in which emotions are regulated influences the emotional fatigue of students (Domínguez-Lara, 2018). Under this reality, the importance of promoting emotional resources in students facilitates a reducer against various tensions (Extremera et al., 2007).

Emotional fatigue refers to the decrease in capabilities, to a person's reaction to the stresses linked to work and its respective demands, of various nature, including academic, which can lead to exaggerations in reactions or behaviors (Demerouti et al., 2001). Similarly, it implies the main reaction in the variety of conditions and situations, which can exacerbate attitudes and behaviors, requiring the respective attention, which interrupts the person's performance (Maslach, 2003; Ramos et al., 2005). The reality of emotional fatigue is very important, because it manifests a relationship with the variety of psychological difficulties such as neuroticism, healthiness and others. Therefore, it can be pointed out as the cause that conditions angry behaviors, low tolerance, uncertainty, lack and other reactions (Moses et al., 2023). It is generated by frequent pressure situations (Fontana, 2011). Faced with this reality, it is necessary to consider that entering the university world involves a great effort, therefore, students must express their resources in this regard and thus achieve success; however, they may be prone to fatigue and tiredness in coping with the various demands (Lara et al., 2013). It is relevant to keep in mind that emotional fatigue can overflow into major complications (Domínguez et al., 2018), given that they experience it due to the various academic tasks and the need to meet the respective goals (Schaufeli et al., 2002); as well as, due to perceiving a threat of lack of what has been achieved or disruption of planning (Hobfoll et al., 2003). Similarly, worry generates stress in university students (Caballero et al., 2007) and aversively conditions expectations towards goals and can deteriorate maturity in the profession (González and Landero, 2007), reduce persistence in studies, with the consequent abandonment of academic tasks (Garrosa et al., 2017).

Emotional regulation refers to the process of paying attention to and managing a reaction to a given situation (Gross & John, 2003). Its control is important since emotions are part of everyday life (Gargurevich & Matos, 2010), and when faced with fatigue and a busy schedule, one can choose ways to comply, either with *cognitive reappraisal* or *suppression* (McRae & Gross, 2020). In the first, the generation of emotions consists of the

modulation of the emotion's predecessors, and implies a reappraisal of the cognitions of a situation, even so, it is not the only way of emotional control. The second involves the variation of the reaction in reducing the nuance of negative emotions, in breaking out the aversive in order to continue rescuing the best experiences. Both ways allow for integration in regulation, which will not only reflect control in behavior, but also a real reflection, appreciating the essence of what happened. When faced with subsequent opportunities, the person will perform better in the process of paying attention to and managing a reaction (Gross & John, 2003), which is part of everyday life and therefore involves the respective management (Gargurevich & Matos, 2010).

It is important to recognize that people can adjust their emotions to meet the expectations of an organization focused on achieving goals. However, beyond introspection, it is essential to promote in students a balanced approach to assuming roles and responsibilities (Grandey & Sayre, 2019). On the other hand, it is important to mention that early relationships are fundamental for a child to choose how to react to difficulties and how to calm down (Mikulincer et al., 2003). The consequences of emotional regulation have a great importance on psychological harmony (Fischer et al., 2007) and on the individual's affect (Hülsheger et al., 2015); along with the control of aggression and violence (Esbec and Echeburúa, 2014).

Academic commitment is a task-related trait composed of vigor, which consists of high energy and mental toughness; dedication, a great assumption in tasks, and suppression, understood as a form of attention related to emotional and cognitive states, frequent, coming from a high self-efficacy, which implies self-confidence and facilitates a commitment to a variety of objectives, whether in studies or other activities, and requires the harmony of these characteristics, and which allow the person to achieve certain goals (Commitment is essential for long-term normative achievement and student satisfaction (Alrashidi et al., 2016), involves good performance in the university field (Horstmanshof and Zimitat, 2007) and is reflected in the way of involvement and commitment in the respective process (Hu et al., 2011). A person's commitment involves determination, strength, motivation, framed in their respective components (Caballero et al., 2007; Schaufeli et al., 2006). Managing commitment is important to avoid delay in activities and discouragement (Domínguez-Lara et al., 2020). Life experiences, home, and expectations are important factors of duty in academia (Astin & Lee, 2003). This is the relevant point to improve the educational circumstances of students (Tucker et al., 2002), it plays a very important role in predisposition and well-being (Martin,

2008) and shows an active commitment to learning (Mih and Mih, 2013), even reducing any feeling of fatigue (Chen et al., 2020).

The study may provide valuable information to improve the experience of university students, reduce academic dropout, and promote effective emotional self-regulation strategies in the academic field. In addition, it may have a relevant impact on student satisfaction and success in their educational path. The objective of this study was to analyze whether emotional fatigue and emotional regulation predict academic engagement in students from the San Martín Region, as well as to evaluate differences according to sociodemographic variables.

Materials and methods

Type and design

The work was framed within a quantitative approach, with a descriptive, correlational and explanatory design (Hernández et al. 2014) because it analyzed the relationships between the variables with a single sample of participants, using valid and available instruments. In addition, it was a cross-sectional study (Ato et al., 2013), since the data collection was carried out at a single time. Likewise, it had a predictive approach that sought to estimate to what extent the independent variables influence the variability of the dependent variable.

Participants

The study population consisted of 11,656 students from private universities in the province of San Martín, Peru. Non-probabilistic sampling was used to calculate the finite sample, since it allows establishing parameters for measurement (Hernández et al., 2014). The sample consisted of 76 students: 23 from University A, 20 from University B, and 33 from University C ; of which 76.3% were women and the average age was between 18 and 56 years (M = 23.23). The inclusion criteria considered an age range between 18 and 56 years, at least the fifth cycle of study, and Peruvian nationality. Regarding the exclusion criteria, it was determined by the absence of information at the time of registration, such as age or other characteristics, students in international or academic internships.

Instrument design

For the evaluation of emotional fatigue, the ECE proposed by Fontana (2011) was used. This was adapted to the Peruvian context and evaluated by Domínguez-Lara et al. (2018), it corresponds to a unidimensional self-report scale composed of 10 items with Likert-type response options from 1 = totally disagree, to 5 = totally agree. The psychometric properties presented show that they are adequate at the level of internal structure and consistency [α = .881; $\chi 2$ = 266.038; CFI = .980; RMSEA = .077; SRMR = .046]. Emotional regulation was evaluated with the questionnaire proposed by Gross and John (2003), adapted to the Peruvian context by Gargurevich and Matos (2010). This instrument consists of a 10-item scale with two factors or dimensions. The response options consisted of seven levels, from 1 = totally agree to 7 = totally disagree. The instrument has adequate internal consistency and structure indexes [α = .73; RMSEA = .073; CFI = .90].

Likewise, commitment was assessed with the scale presented by Schaufeli et al. (2006), which was adapted to the Peruvian context by Domínguez-Lara et al. (2020). It consists of nine items with three dimensions, with Likert-type response options from 1 = totally disagree, to 5 = totally agree. The internal consistency of the instrument was Ω = .90, in addition to having adequate fit indices (CFI = .992; RMSEA = .085; 90% CI), which ensures objective data collection.

Data analysis

The authorities of the institutions were contacted to request authorization to carry out the study. After obtaining the corresponding authorization, informed consent was given. The information collected was analyzed with SPSS® version 29 (IBM Corp.). First, a normal distribution analysis was performed, for which it was tested using the Kolmogorov-Smirnov test, whose results indicated a non-normal distribution in one of the variables. For this reason, a non-parametric test was used. Secondly, the levels of agreement were measured with the cut-off points and comparisons were made between groups using the Mann-Whitney U test and the Kruskal-Wallis test. To respond to the general objective, a multiple linear regression was used, complemented with the Pearson *r correlation coefficient.*

Results

Reliability analysis of instruments

For the development of the study, the internal consistency evaluation was initially carried out using alpha and omega with 30 participants, values were obtained in a range of 0.75 and 0.95 which allowed establishing that the instruments had consistency and measured the construct adequately for data collection, as shown in Table 1.

Table 1 Internal consistency of the applied scales

Variables	Cronbach's α	McDonald's ω
Emotional fatigue	.911	.914
Emotional regulation	.885	.888
Cognitive Rev.	.841	.847
Suppression	.801	.803
Academic commitment	.931	.935
Vigor	.794	.798
Dedication	.856	.863
Absorption	.804	.810

Note : Internal consistency analysis SPSS29

Level of fatigue, regulation and academic commitment

According to the analysis of Table 2, it was found that the levels of emotional fatigue were 61.8% low, while emotional regulation was 38.2% high, while 51.3% of the participants considered that they have a medium level of academic commitment.

Table 2 Distribution of levels of emotional exhaustion, emotional regulation and academic commitment

Level	Emotional fatigue		Emotional regulation		Academic commitment	
	N	%	N	%	N	%
Low	47	61.8	22	28.9	13	17.1
Half	18	23.7	25	32.9	39	51.3
High	11	14.5	29	38.2	24	31.6
Total	76	100.0	76	100.0	76	100.0

Note : Analysis of data from applied questionnaires

According to Table 3, it has been found that according to the Mann-Whitney U analysis, emotional exhaustion, regulation and academic commitment occur in a similar way between men and women, which implies that the manifestations do not differ and have an impact on the academic field.

Table 3 Comparative analysis by sex of the variables: emotional fatigue, emotional regulation and academic commitment

Variables	Sex	Average range	Mann-Whitney U
			P
Emotional fatigue	Women	40.72	0.116
	Male	31.36	
Emotional regulation	Women	36.48	0.152
	Male	45	
Academic commitment	Women	40.39	0.18
	Male	32.42	

Note : SPSS29 Analysis

Table 4 shows that regardless of the university of origin, fatigue, regulation and academic commitment reach similar values, which indicates that no statistically significant differences were found ($p > 0.001$). This suggests that common factors, such as academic stress, university demands or individual characteristics of students, could influence these variables in a similar way.

Table 4 Comparative analysis by university of the variables: emotional fatigue, emotional regulation and academic commitment

Variables	University	Average range	Kruskal-Wallis
			P
Emotional fatigue	TO	31.87	0.154
	B	35.38	
	C	46.54	
	D	45.77	
Emotional regulation	TO	44	0.11
	B	31.76	
	C	46.5	
	D	41.87	
Academic commitment	TO	42.93	0.351
	B	40.1	
	C	28.46	
	D	38.47	

Note : SPSS29 Analysis

Correlation analysis

According to Table 5, to carry out the correlation process between the variables, the initial test of data normality was considered, where the variables registered a value below .050, except for reevaluation, suppression and academic commitment with values of 0.200. However, since not all variables presented these normality characteristics ($p > 0.050$), a nonparametric test was applied for the respective correlations.

Table 5 Normality test of the variables

Scale	Kolmogorov-Smirnov [a]		
	Statistical	gl	Next.
Emotional fatigue	.094	76	.093
Emotional regulation	.105	76	.037
Cognitive reappraisal	.086	76	.200*
Suppression	.064	76	.200*
Academic commitment	.083	76	.200*
Vigor	.101	76	.054
Dedication	.128	76	.004
Absorption	.131	76	.003

* This is a lower limit of the true significance.

[a] Lilliefors significance correction

Note : SPSS29 Analysis

Table 6 shows the means and standard deviations found for each variable. In addition, a significant relationship was found between fatigue and emotional regulation, suggesting that these results could be applicable to the context studied. Similarly, correlations have been recorded between the suppression dimension. On the other hand, emotional regulation showed a significant correlation with cognitive reappraisal and suppression.

Table 6 Correlation analysis of the variables

Variables	M	OF	1	2	3	4	5	6	7	8
(1) Emotional fatigue	25.28	7.43	-	.327 **	.183	.345 **	-.084	-.022	-.067	-.130
(2) Emotional regulation	42.68	9.63		-	.849 **	.656 **	.030	.090	-.012	.017
(3) Cognitive reappraisal	28.45	7.18			-	.214	.165	.188	.113	.126
(4) Deletion	14.24	5.04				-	-.191	-.111	-.212	-.172
(5) Academic commitment	47.83	8.5					-	.889 **	.912 **	.865 **
(6) Vigor	14.55	3.11						-	.773 **	.627 **
(7) Dedication	16.2	3.13							-	.684 **
(8) Absorption	17.08	3.07								-

**. The correlation is significant at the .01 level (two-tailed).

Note : SPSS29 Analysis

A multiple linear regression model was conducted with the input method to determine whether emotional fatigue and regulation can predict academic engagement in university students in the San Martín Region. The resulting regression equation was not statistically significant, F (2,73) = 0.964, p = 0.386, indicating that a strong predictive relationship was not found. The value of $R^2 = 0.026$ indicates that only 2.6% of the variability in academic engagement can be explained by emotional fatigue and regulation, which is insufficient to establish a significant relationship. This suggests that emotional fatigue and regulation are not significant predictors of academic engagement in this sample. Although optimal prediction values were not achieved, the regression equation obtained was: "Y=51.42+0.19(emotional fatigue)+0.03(emotional regulation) Y = 51.42 + 0.19(\text{emotional fatigue}) + 0.03(\text{emotional regulation})". However, the coefficients associated with emotional fatigue and emotional regulation did not show significant increases in academic engagement scores (Table 7).

Table 7Linear regression analysis of fatigue and emotional regulation on academic engagement

Predictor variables:	R^2	β	SE [a]	P -value
Model 1	0.026	51.42	4.876	0.386 [b]
Emotional fatigue		-0.193	0.141	
Emotional regulation		0.03	0.109	

Note : Data extracted from SPSS29

Discussion

This research evaluated whether emotional fatigue and regulation predict academic engagement among university students in the San Martín region using a multiple linear regression model with an input method. The results showed that the regression equation was not statistically significant (F (2.73) = 0.964, p = 0.386), with an R^2 value of 0.026, which is also insignificant. Therefore, it is concluded that emotional fatigue and regulation do not predict academic engagement, leading to the rejection of the alternative hypothesis. The resulting equation was 51.42 + 0.19*(emotional fatigue) + 0 .03*(emotional regulation), where the coefficients did not show a significant increase in scores. These findings aligns with previous research by Domínguez-Lara et al. (2023) found that fatigue is not a predictor of academic engagement. Atauje (2021) concluded that emotional regulation has a greater influence on the satisfaction of psychological needs than on academic engagement, while Prada-Chapoñan et al. (2020) also determined that fatigue does not have a relevant predictive force compared to other variables such as personality characteristics. Additionally, Skinner and Pitzer (2012) pointed out that academic engagement is multifaceted and depends on several factors, not only on emotional control. Elliott and Tudge (2012) highlighted that engagement is based on intrinsic motivation, which develops over time and the academic situation, being more influential than emotional regulation. Astin and Lee (2003) emphasized the importance of considering life history and individual predispositions as predictors of academic engagement. Cole and Korkmaz (2013) underlined the relevance of students' life history, experiences, and expectations in predicting engagement. It is essential to reflect on various aspects of academic engagement, such as will, resilience, and effort, which can motivate students to continue despite personal, family, or economic challenges. In addition, factors such as the importance of maintaining a social image can influence student

engagement. In the post-pandemic context, individuals are likely to be using different coping mechanisms, where resilience and behavior become more relevant than other aspects.

Emotional regulation and academic engagement in Peruvian university students. The results highlight the importance of considering emotional factors in the academic experience of students and suggest that resilience and intrinsic motivation can play a fundamental role in their academic engagement despite emotional tensions. Among the important results, it has been found that the level of emotional fatigue was low at 61.8%, this represents that students feel capable of effectively managing their emotions and the stress associated with their studies; this is very contrary to the data referenced by Barreto and Salazar (2021); Gustavo (2021) who found rates above 30% and refer to the impact on academic performance and the affectation of relationships with their close environment. Likewise, emotional regulation presented high rates, similar to the data presented by Ponce and Telenchana (2023) suggesting that these students are capable of identifying and understanding their emotions, controlling impulsive reactions, and employing healthy strategies. While academic commitment presented medium or moderate levels, as in the results obtained by Estrada & Paricahua (2023), this relationship is based on the circumstances of the geographic spaces respectively.

A significant relationship has been found between fatigue and emotional regulation. This result is in line with evidence that regulatory ways of thinking are related to emotional fatigue, because the demands to which the student is exposed can lead to loss of control if there is no adequate regulation or a good predisposition and personality characteristics (Prada-Chapoñan et al., 2020; Dominguez-Lara, 2018; Dominguez et al., 2018).

Emotional fatigue is not related to academic commitment. This result is in line with the sense that commitment to academic activities can be as relevant even in the face of situations such as fatigue, and similarly aspects such as resilience explain the assumption of academic commitment in adversity (Alrashidi et al., 2016; Caballero et al., 2007), while high-will behaviors are powerful (Mih & Mih, 2013) even reducing exhaustion (Chen et al., 2020). Emotional regulation is not related to academic commitment, which leads to the reflection that commitment is related to self-efficacy, in the belief in one's own capabilities and not necessarily in the control of emotions (Caballero, 2006). Meanwhile, an individual may be emotionally unwell, but by social reference, he may commit himself to achieving results (Oga-Baldwin, 2019). Predisposition and expectations also play an important role (Cole & Korkmaz, 2013; Astin and Lee (2003) indicate that emotional fatigue is related to

suppression. The result is in line with the consideration that an important path, a compliance mechanism and a way of managing the emotional response is suppression, significantly decreasing inappropriate emotions to achieve the desired goal (Gross and John, 2003; McRae & Gross, 2020). Emotional fatigue and regulation are not related to the dimensions of academic commitment, so it is important to reflect on the various aspects of student commitment, such as, for example, volition, tolerance, commitment, effort can energize a student, despite their fatigue or family, personal, economic or other problems. Likewise, aspects such as the need to maintain an image in the group or community, in order to maintain the level or rigor, even if there is great suffering, lead the student to continue in order to achieve their determined objectives. In a post-pandemic stage, the individual may be opting for different ways of coping with misfortune. The leverage of resistance and behavior is of great relevance compared to other conditions. The present study has addressed a topic of relevance, which does not dismiss the results, however, it is important to emphasize the main limitations, as fundamental lies in the sample size, which, although it was calculated through statistical processes, these were not significant, since for correlational studies increasingly larger samples are required, in addition, the use of more robust calculators may be necessary.

Conclusions

In summary, the findings of this research indicate that emotional fatigue is related to the ability to modify, control or stop one's own reactions. However, fatigue and tiredness are not related to commitment to academic activities. Commitment can reduce the feeling of tiredness. On the other hand, there is no relationship between emotional regulation and academic commitment. Other aspects such as self-efficacy, belief in one's own actions and meeting goals by social comparison can be strong in meeting goals. And emotional fatigue is related to suppression, which implies that it is not necessarily necessary to reflect, but rather to interrupt thoughts or discomfort in order to continue towards the goal. Finally, it was shown that fatigue and emotional regulation do not predict academic commitment in university students.

Future lines of research

It is important to mention that it is advisable to further study aspects of the relationship between emotional fatigue and regulation, such as academic performance, and to explore details of the relationship between emotional fatigue and suppression, considering positive and negative affective experiences, anxiety and depression, among other aspects, which will allow a better understanding of the variables. In addition, the results provide a basis for investigating the complex interactions between emotional fatigue, emotional regulation and academic engagement in university students. Addressing these areas of research may contribute to the development of more effective strategies to promote student satisfaction and academic achievement in university environments. Future research could include comparative analyses between different groups of students. These could consider variables such as level of study (undergraduate versus graduate), academic disciplines (technical versus humanistic careers) or sociodemographic variables, such as gender and socioeconomic level. This would allow evaluating whether the relationships between emotional fatigue, emotional regulation and academic engagement are consistent or vary according to the student profile. Exploring these issues will facilitate the development of specific and effective intervention strategies to promote the academic well-being of university students.

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