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Original

The mediating role of satisfaction with life in the relationship between hope and academic satisfaction among Ecuadorian university students

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ABSTRACT

The aim is to identify the effect that hope has on academic satisfaction at a direct and indirect level through satisfaction with life in a sample of university students from Ecuador. The method used is based on a descriptive, explanatory mediation and cross-sectional study with SEM techniques. The sample is formed by 879 participants, 79.6% are women and 20.4% are men. With ages between 18 and 67 years ($M = 29.71$, $SD = 7.92$). The students are from ten public universities in Ecuador, divided into 22 undergraduate courses. The results are that the levels of hope, life satisfaction and academic satisfaction are moderate and high. Hope and satisfaction with life explain 24.6% of the changes in the variance of academic satisfaction. Satisfaction with life plays a mediating role and explains 58.6% of the total effect of the relationship between hope and academic satisfaction. It is concluded that hope exerts both a direct and indirect effect through life satisfaction on the academic satisfaction of university students in Ecuador.

El papel mediador de la satisfacción con la vida en la relación entre esperanza y satisfacción académica en universitarios ecuatorianos

Palabras clave:
Esperanza
satisfacción con la vida
satisfacción académica
SEM
mediación

RESUMEN

El objetivo del estudio es identificar el efecto de la Esperanza en la Satisfacción Académica a nivel directo e indirecto a través de la Satisfacción con la Vida en una muestra de universitarios del Ecuador. El método empleado es descriptivo, de mediación explicativa y transversal con técnicas SEM. La muestra está formada por 879 participantes, el 79.6% son mujeres y el 20.4% hombres. Con edades entre los 18 y a 67 años ($M = 29.71$, $DE = 7.92$). Son estudiantes de diez universidades públicas del Ecuador, divididos en 22 carreras de pregrado. Los resultados muestran que los niveles de Esperanza, Satisfacción con la Vida y Satisfacción Académica son moderados y altos. La Esperanza y la Satisfacción con la Vida explican el 24.6% de los cambios en la varianza de la Satisfacción Académica. La Satisfacción con la Vida juega un papel mediador y explica el 58.6% del efecto total de la relación entre esperanza y satisfacción académica. Se concluye que la esperanza ejerce un efecto tanto directo como indirecto a través de la satisfacción con la vida sobre la satisfacción académica de los estudiantes universitarios en el Ecuador.

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Introduction

University education serves as a critical pathway for personal development. The determination and effectiveness required to excel in this academic setting are pivotal for future professional accomplishments (Moreta-Herrera et al., 2019). Indeed, students who perform well during this stage are more likely to experience subsequent professional success (Rand et al., 2020), which contributes to enhanced well-being and overall satisfaction (Foroughi et al., 2022). To ensure optimal academic performance, a range of internal and external factors must be considered (Jeffries & Salzer, 2022). These include teaching and learning methodologies, educational infrastructure, and the nurturing of subjective elements like self-assessment and self-motivation (Aslan & Duruhan, 2021; Theobald, 2021). Additional factors such as academic satisfaction (Hayat et al., 2020; Rand et al., 2020) and scholar adaptation (Dominguez-Lara et al., 2022; Zhao et al., 2022) are also integral, complementing the acquisition of knowledge and professional skills.

Within this context, the subjective experiences of student well-being and satisfaction garner interest for several reasons. Firstly, they serve as subjective indicators of academic success (Wach et al., 2016), given the intrinsic relationship between them (Bortes et al., 2021). And secondly, they play a significant role in influencing academic performance (Franzen et al., 2021). Hence, academic satisfaction (AS) is a particular aspect of subjective well-being in specific contexts such as education, so it is necessary to study it. In this aspect, the AS encompasses the students' subjective evaluation of their well-being and enjoyment in both their roles and the broader educational context and can be understood as both an antecedent and a component of satisfaction in general (Lounsbury et al., 2004; Medrano & Pérez, 2010); however, the AS is shaped by both institutional characteristics and individual perceptions of the learning environment (Biles et al., 2022).

Traditionally, universities have prioritised objective metrics such as student retention and academic performance to gauge success (Sánchez-Cardona et al., 2021). However, subjective elements like happiness, satisfaction, and pleasure derived from the educational setting are often overlooked (Kaya & Erdem, 2021). This lack of institutional focus on AS as a performance metric is particularly striking given that evidence suggests high levels of AS contribute to various positive outcomes (Bortes et al., 2021). Yet, it remains under-monitored, despite its importance and the susceptibility of young adults to mental health fluctuations (Moreta-Herrera et al., 2018; Wach et al., 2016).

Although the advantages of strong AS are acknowledged, ranging from improved school adaptation (Duffy et al., 2015; Zhao et al., 2022) and academic commitment (Lodi et al., 2017) to the reinforcement of vocational pursuits (Cain et al., 2021), research on this subject remains scant. A significant gap exists in understanding the multiple predictors that influence the dynamics of AS.

Hope and satisfaction in life in university students

Two particular attributes warrant attention for their relevance to the educational context and their largely unexplored relationship with AS. The first attribute relates to future expectations, including hopes and desires that students anticipate fulfilling. Hope, in this context, is a cognitive disposition linked with personal confidence that a goal or achievement will materialize in the near future (Herth, 1992). Viewed through a cognitive-motivational lens, hope serves as a positive state that equips individuals with the determination and cognitive resources to realize their objectives (Mana et al., 2022; Snyder et al., 1991). This sense of hope interacts with and is shaped by the educational environment, often leading to elevated levels among university students (Ebrahimi et al., 2023; Kardas et al., 2019; Marques et al., 2017). This is understandable, as students must maintain their focus on academic goals to navigate both the duration of their studies and various challenges. Hopeful thinking can channel mental energy towards initiating and sustaining tasks, thereby serving as a significant predictor of academic performance in a university setting (Rand et al., 2020), perhaps for its role with mental health and balance (Ruíz-Olarte et al., 2023).

The second attribute is Satisfaction with Life (SWL), which refers to the overall assessment of an individual's quality of life (Diener et al., 1985, 1999). It is considered as the cognitive component of hedonic well-being (Diener et al., 1999) and is a marker that signals aspects about an individual's (including students) ability to cope with life's daily challenges (Achkar et al., 2019). The theoretical interpretation of satisfaction presents certain nuances in its organization. Thus, on the one hand, satisfaction judgments that evaluate the whole of life as a generality (SWL) are studied; and on the other hand, particular judgments about specific domains of life such as work, family (Suldo et al., 2008) and even education (SA). Thus, SWL and SA although related, are clearly defined and interdependent constructs. In the sense of the generality of satisfaction, it is gathered that positive or negative academic experiences tend to increase or decrease the SWL of the individual (Kaya & Erdem, 2021; Rand et al., 2020). This is because academic life and especially its culmination can be considered as a personal achievement that grants individual and family fulfillment and fulfillment. Thus, the college experience can be considered to play an important long-term role in determining the individual's positive future (Baños et al., 2019). This points to indicate that the correspondence between SWL with academic elements such as performance, engagement, motivation and others is marked and relevant (Foroughi et al., 2022; Reysen et al., 2020; Samaha & Hawi, 2016). And in this way, it is configured as a subjective element that influences the processes of learning and acquisition of personal skills and competencies.

The present study

Hope and SWL are indeed significant factors in elucidating the academic dynamics among university students. These attributes not only covary with each other (Ebrahimi et al., 2023; Kardas et al., 2019; Li et al., 2022) but also correlate and potentially influence objective markers of academic success. However, a gap exists in our understanding of how these factors interact with subjective indicators like AS.

To improve our understanding of subjective academic success, it is critical to examine these potential predictors. The role of hope is particularly noteworthy, as it has been shown to explain variation in indicators of well-being both at the general level with SWL (Murphy, 2023; Pahlevan Sharif et al., 2021; Rand et al., 2020) as well as a specific domain of satisfaction at the school level (AS) (Peker & Cengiz, 2023); noting that these elements present theoretical differences as independent constructs, but have extensive mutual correspondence (Weber & Huebner, 2015). And based on this, it is proposed as plausible that hope not only exerts a direct effect on AS as reported, but also exerts it indirectly through SWL as a mediating variable (see Figure 1) and that it has not been raised previously. That is, the variability of academic satisfaction not only depends on the probable influence of hopeful thinking directly, but also through the intervention of global satisfaction as the third variable involved.

Understanding the predictability between these variables is essential for inferring potential causal relationships. Furthermore, knowing how third variables interact can provide insights into why these variables are linked in the first place. Therefore, this study proposes the following objectives: (1) to identify the pres-

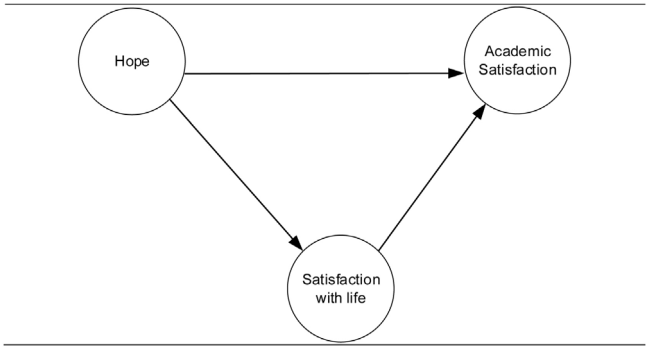


Figure 1. Mediation model of Satisfaction with Life in the relationship between Hope and Academic Satisfaction.

ence of hope, SWL, and AS among a sample of Ecuadorian university students; (2) to assess the degree of covariability between these variables; (3) to develop a multiple structural regression model with SEM using hope and SWL as exogenous variables in order to explain the variance in AS, which serves as an endogenous variable; and (4) to establish whether SWL functions as a mediator in the relationship between hope and AS. The hypotheses for the study are as follows: levels of hope, SWL, and AS are adequate among the student sample (H_1); hope, SWL, and AS covary with each other (H_2); the multiple structural regression model with SEM will reveal that hope and SWL predict AS (H_3); and SWL will act as a mediating variable between hope and AS (H_4).

With this study, we aim to invigorate interest in the study of subjective academic success and contribute to the development of intervention strategies. These could strengthen students' academic mastery, professional vocations, and academic interest by promoting positive attributes.

Method

Design

The present research is a cross-sectional, descriptive, correlational and explanatory study (Ato et al., 2013) in which the mediating effect of the SWL in the relationship of hope and academic satisfaction in a sample of university students from Ecuador is analyzed.

Participants

The study comprised 879 participants, of whom 79.6% were women and 20.4% were men. The age range spanned from 18 to 67 years, with a mean age of 29.71 (SD = 7.92). In terms of ethnic identity, 93.9% identified as mestizo, while the remaining 6.1% identified as indigenous, Afro-Ecuadorian, or white. A majority of 73.2% resided in urban areas, and the remaining 26.8% in rural settings. Academically, participants belonged to ten public universities in Ecuador and were enrolled in 22 different undergraduate programmes. A small portion, 1.3%, reported repeating a year, 3.5% were retaking at least one subject, and 1.5% had recently switched careers. Additionally, 10.9% indicated that they were currently at academic risk due to poor performance. The study employed a non-probabilistic convenience sampling method. Inclusion criteria were: (a) being over 18; (b) volunteering for the study; (c) signing a consent form; and (d) regularly participating in the academic activities of their educational institution.

Instruments

Herth Hope Inventory (HHI; Herth, 1991, 1992). This inventory was used to assess levels of hope. Consists of 12 items answered on a five-point Likert scale, ranging from 1 = totally disagree to 5 = totally agree. The items are grouped into two factors based on Haugan et al.'s (2013) proposal: (a) temporality and expectancy with nine items; and (b) interconnectedness with three items. The Spanish version by Castilla Cabello et al. (2014) was used for this study. As for the psychometric properties of the HHI, Haugan et al. (2013) found acceptable internal consistency with $\alpha_{(temporalityandexpectancy)} = .73$ and $\alpha_{(interconnectedness)} = .67$. In this study, it began with an exploratory factor analysis (EFA) with estimation of unweighted square minimums (USM) in order to identify the dimensionality of the measure, in which it was identified that the scale responds in a unidimensional way that explains 76.4% of the variance. Subsequently, verification was carried out through Confirmatory Factor Analysis (CFA) with estimation of weighted minimum squares with adjusted mean and variance (WLSMV) and three models were tested. One of a one-dimensional character with values of $\chi^2 = 365{,}39$, $p < .001$, $df = 44$, $\chi^2/df = 8.30$, CFI = .982, TLI = .977, SRMR = .034, RMSEA = .099 [.090 - .109]; the second with the adjustment of two factors correlated with $\chi^2 = 395.58$, $df = 53$, $p < .001$, CFI = .985, TLI = .981, SRMR = .032, RMSEA = .093 [.085 - .102] with high correlations ($r = .977$); and an hierarchical factor model was employed, incorporating both original factors as first-order variables and a general second-order factor due to high factor correlations that limit the possibility of empirically identifying the dimensions (Byrne et al., 2016). The model fit indices were as follows: $\chi^2 = 397.55$, $df = 53$, $p < .001$, CFI = .984, TLI = .981, SRMR = .028, RMSEA = .086 [.078 - .094]. This evidence presumably indicates that the hierarchical model is the most appropriate due to better fit indices (RMSEA and specially SRMR are within the ranges of adequacy than with the other models (Shi et al., 2020). Additionally, the overall internal consistency was high, with $\omega_{(HHI)} = .954$ [.946 - .961], $\alpha_{(HHI)} = .922$ [.914 - .923], $AVE_{(HHI)} = .961$, $CR_{(HHI)} = .982$.

Satisfaction with Life Scale (SWLS; Diener et al., 1985). The SWLS translated into Spanish (Cabañero et al., 2004) and adapted for Ecuadorian university students (Moreta-Herrera et al., 2024), was used to assess overall life satisfaction. The scale comprises 5 items, answered on a seven-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. A higher summed score indicates greater life satisfaction. In the Ecuadorian context, the scale exhibited high internal consistency with $\omega_{(Ecuador)} = .84$, $CI_{95\%}$ [0.81 - 0.87], deemed adequate. For this study, the unidimensional original version was used, showing good model fit indices and high internal consistency $\omega_{(SWLS)} = .912$ [.901 - .924], $\alpha_{(SWLS)} = .905$ [.895 - .915], $AVE_{(SWLS)} = .729$, $CR_{(SWLS)} = .832$.

Academic Satisfaction Scale (AS-S; Lent et al., 2007). The AS-S adapted for a Chilean context (Vergara-Morales et al., 2018), was used to measure students' satisfaction with their academic experiences. This seven-item scale uses a five-point Likert scale ranging from 1 = totally disagree to 5 = totally agree. Psychometric evaluation indicated a unidimensional structure and high internal consistency $\alpha_{(ordinalASA)} = .92$. For this study, model fit indices and internal consistency were found to be high, with $\omega_{(AS\text{-}S)} = .979$ [.975 - .983], $\alpha_{(AS\text{-}S)} = .749$ [.743 - .755], $AVE_{(AS\text{-}S)} = .908$, $CR_{(AS\text{-}S)} = .921$, considered adequate.

Procedure

Upon obtaining authorisation from higher education institutions, potential participants were informed about the study's purpose, activities, and measures to ensure anonymity and data protection. Consent was obtained from those who agreed to participate, both for their participation and for the use of their data.

Participants then received a link to the survey, hosted on Google Forms. Following data collection, responses were cleaned and transferred to electronic sheets for statistical analysis (The data is freely available at https://osf.io/px5kc/). Finally, the results were examined in relation to the study's hypotheses, leading to the formulation of conclusions. Ethical compliance was a priority; the study adhered to the Helsinki convention guidelines for research involving human subjects and was approved by the relevant institutional review board.

Analysis of data

Descriptive analysis. The first block of analysis involves descriptive statistics, where measures of central tendency such as the arithmetic mean (M) and adjusted mean (M_p), along with dispersion measures like the standard deviation (SD), are presented for each measure (HHI, MHC-SF, and AS-S). Distribution measures, namely skewness (g_1) and kurtosis (g_2), are also included.

Structural analyses. The second block focuses on structural analyses using Structural Equation Modeling (SEM) techniques. It comprises a set of multivariate statistical models that help to estimate the effect and relationships between multiple variables and that provide greater flexibility than other models by including the measurement error of the variables within a model. These analyses examine latent relationships between hope, SWL, and AS and aim to establish the viability of an explanatory model. They also explore the mediating role of SWL between hope and AS through structural multiple regressions with SEM. Weighted Least Squares with Adjusted Mean and Variance (WLSMV) estimates are used, which are appropriate in the absence of multivariate normality and for ordinal response scales (Li, 2016).

Model fit is evaluated using a variety of indices, including absolute fit indices like the Chi-square (χ^2), normed Chi-square (χ^2/df), and Standardised Root Mean Square (SRMR); relative fit indices like the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI); and a non-centrality based indicator, the Root Mean Square Error of Approximation (RMSEA). Acceptable model fit is indicated by a non-significant ($p < .05$) in χ^2, or alternatively, $\chi^2/df < 4$, CFI and TLI greater than .95, and SRMR and RMSEA lower than 0.08 (Brown, 2015; Byrne, 2008; Jak et al., 2021; Moreta-Herrera et al., 2021; Wolf et al., 2013).

Initially, a general fit model is established to identify how the variables under study are latently related. It is expected that hope, SWL, and AS will at least mildly covary with each other ($r > .20$), either positively or negatively, meeting the criteria for structural regression and mediation analyses (Baron & Kenny, 1986). In the mediation analyses, the direct effect of hope on AS (c') and the indirect effect mediated by SWL (ab) are examined. Mediation is considered complete if c' is not significant ($p < .05$); otherwise, it is partial. If mediation is confirmed, the Mediation Percentage (M_P) can be calculated by dividing ab by c and multiplying the result by 100. This allows to understand the percentage of the total effect explained by the mediating variable (Gunzler et al., 2013; Lange et al., 2017).

Statistical tools. The analyses were performed using the R programming language (version 4.01, R Core Team, 2019). Various packages were employed, including 'foreign' for database manipulation, 'MNV' for multivariate normality analysis, and 'lavaan' for latent relationships, structural regressions, and mediation.

Results

Descriptive analysis

Table 1 outlines the descriptive outcomes of the measures employed. For hope, the aspect of *interconnection* is more prevalent among participants compared to *temporality and expectancy*; nonetheless, both dimensions exhibit moderate-to-high intensity. Overall, hope is moderately to highly present in the sample. As for SWL, the analysis indicates a moderate-to-high presence when evaluated globally. AS similarly exhibits moderate-to-high intensity among participants.

Table 1
Descriptive analyses of hopeful thinking, satisfaction with life and academic satisfaction

Factors	*M*	*SD*	M_p	g_1	g_2
Temporality & expectancy	36.80	7.43	4.08	-1.40	2.34
interconnectedness	12.76	2.59	4.25	-1.68	3.25
Hope	49.57	9.79	4.13	-1.53	2.83
Satisfaction with life	22.79	7.30	4.56	-0.52	-.463
Academic Satisfaction	38.17	10.73	5.45	-1.24	1.16

Note. M = aritmethic mean; SD = standard deviation; M_p = ponderated mean; g_1 = skewness; g_2 = kurtosis.

Fit model

Figure 2 illustrates the model fit for the variables of interest (hope, SWL, and AS) using SEM techniques. The model reveals moderate and positive covariance between *hope* and AS, and a similar pattern is observed between SWL and AS. Moreover, *hope* and SWL display moderate and positive covariance with each other. Thus, evidence supports the latent correlation among these variables. The fit indices also suggest that the proposed structural model is appropriate for the sample of Ecuadorian university students.

Mediation analysis with SEM

Figure 3 presents the SEM-based mediation analysis examining the role of SWL in the relationship between *hope* and AS. Overall, the model indicates that *hope* and SWL, as exogenous variables, together explain 24.4% of the change in variance of AS as an endogenous variable, while the remaining percentage of change in variance is explained by other variables. Based on this, they are constituted as predictors of the SA by having a potential to project SA values from specific values. Individually, *hope* explains 16.8% and SWL 22.6% of the change in variance of *hope*. The SEM model used in the analysis shows an adequate fit for the sample of Ecuadorian students.

For the mediation aspect, the indirect effect is found to be significant ($p < .05$), suggesting an indirect influence of *hope* on AS through SWL. Additionally, the direct effect (c') is smaller than the total effect (c), indicating that SWL partially mediates the relationship between *hope* and AS. Although the direct effect remains significant ($p < .05$), SWL as a mediator explains 56.8% of the total effect, which is considered moderate.

Discussion

The study aims to explore the prevalence of hope, SWL, and AS among university students. It also investigates the role of SWL as a mediating variable in the relationship between hope and AS. The levels of hope, SWL, and AS among the participants were found to range from moderate to high. This suggests that these psychological attributes are significant factors in the students' interaction with their academic environment. For Ecuadorian students, university life often holds substantial personal meaning, serving as an individual achievement that boosts their levels of hope and overall satisfaction. Although these findings align with prior international studies (Duffy et al., 2015; Foroughi et al., 2022; Kardas et al., 2019; Sánchez-Cardona et al., 2021), they could not be compared with national data. As for the correlations, Figure 1 reveals that hope has

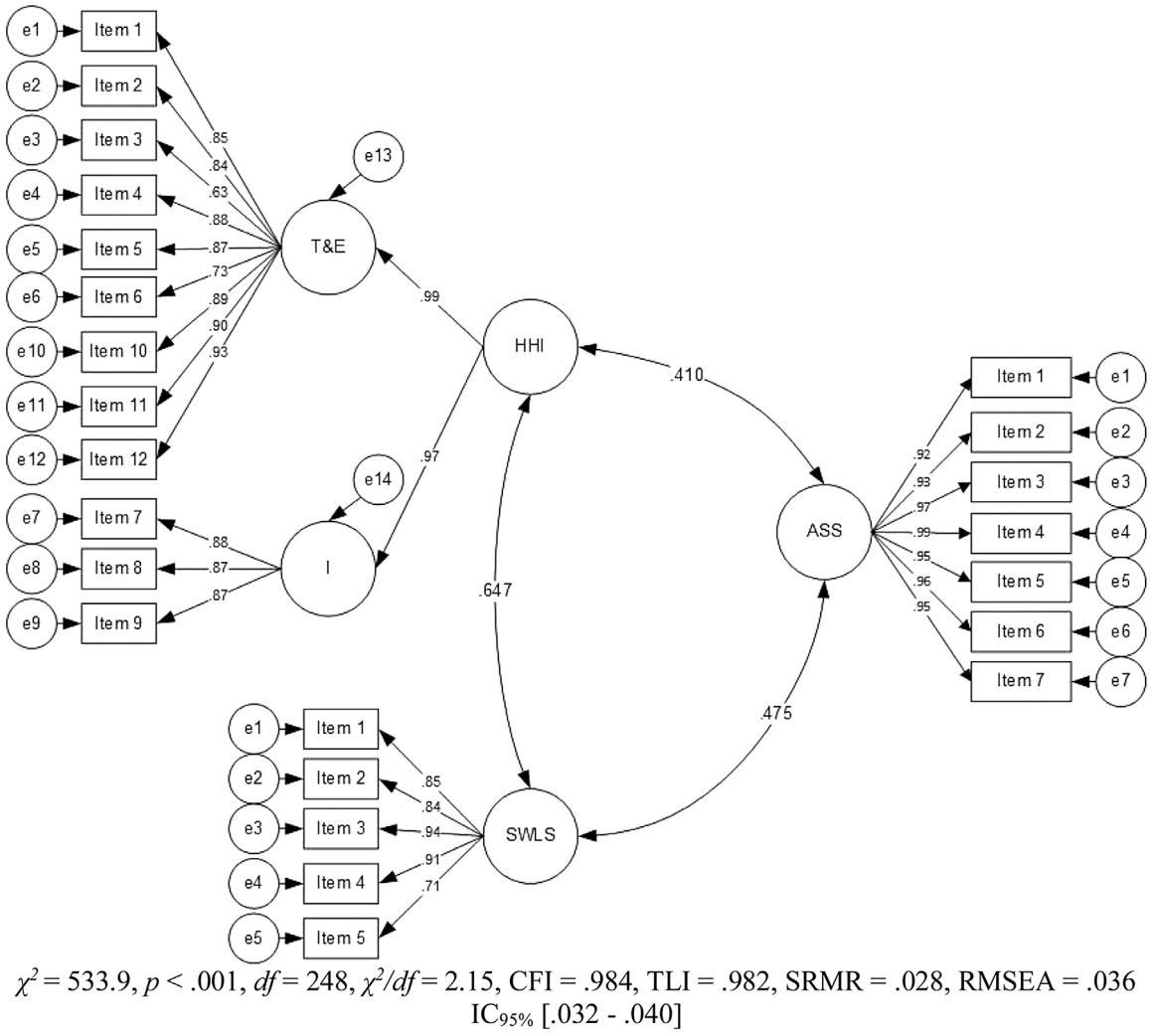


Figure 2. Structural adjustment model of hope, well-being, and academic satisfaction.
Note. HHI = Hope Hert Indez; SWLS = Satisfaction with Life Scale; AS-S = Academic Satisfaction Scale.

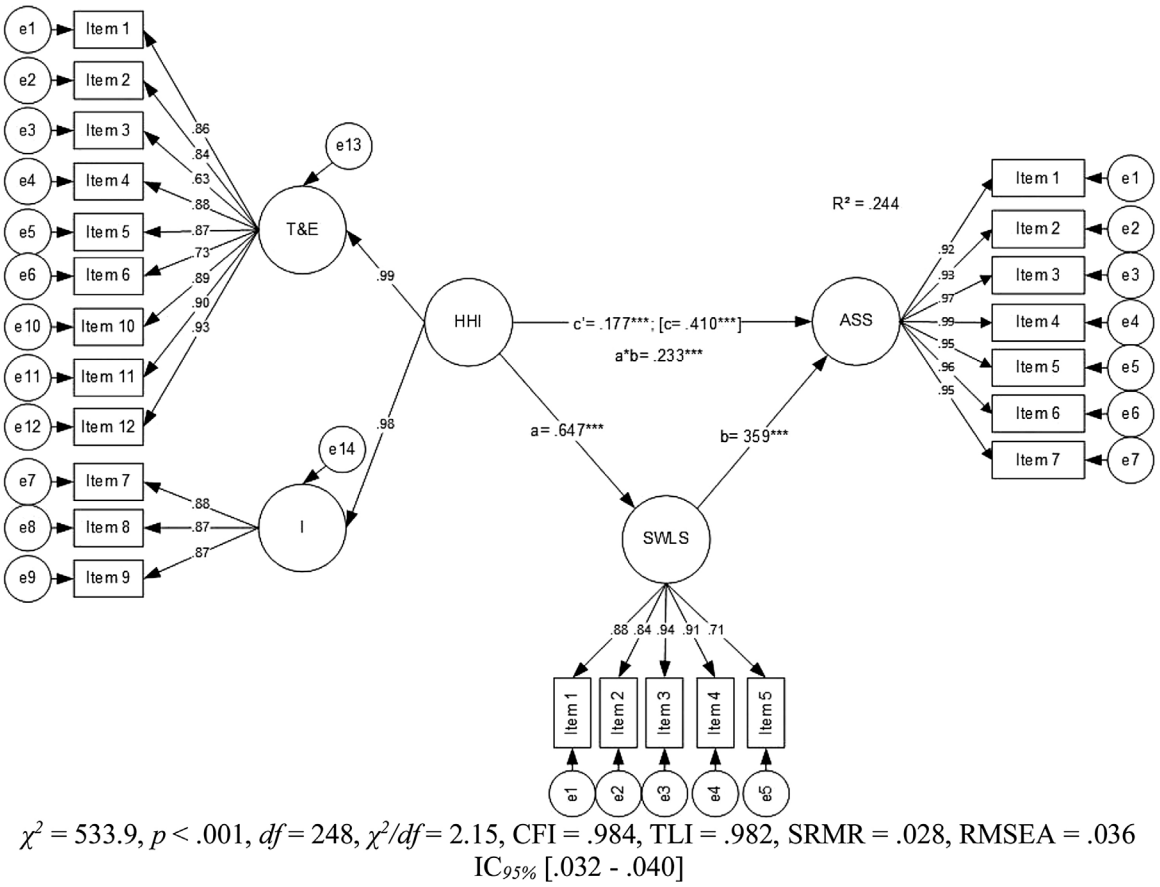
a moderate, positive covariance with both SWL and AS. This indicates that hope influences levels of satisfaction in a general sense, corroborating previous findings related to SWL (Kardas et al., 2019; Li et al., 2022). It also appears to have a specific impact within the academic context, a novel insight lacking previous corroboration. Both SWL and AS exhibit a moderate and positive covariance, reinforcing the idea that AS is a specific domain within the broader construct of SWL (Weber & Huebner, 2015). This contributes to our understanding of hedonic well-being components.

In the structural analysis using SEM, hope was found to be a significant predictor of both SWL and AS. Specifically, it explains 41.8% of the change in variance of SWL, indicating high predictability, and 16.8% of the change in variance of AS, showing lower predictability. This suggests that hope is a crucial factor in understanding student satisfaction, both in life in general and in the academic context. In particular, hope influences SWL more than AS, implying that students are more likely to relate their hopeful thoughts to broader life satisfaction than to AS alone.

These findings align with existing literature establishing hope as a predictor of SWL (Pahlevan Sharif et al., 2021; Rand et al., 2020). However, its role in predicting AS is a novel contribution, as no prior studies have reported this relationship. Similarly, SWL was found to predict AS moderately, explaining 22.6% of change of the variance. This suggests that a baseline level of life satisfaction is necessary for AS to occur. Together, hope and SWL accounted for 24.4% of the change in variance of AS, demonstrating a moderate and significant influence. Their potential combined predictability suggests that they are relevant for understanding not only objective markers of academic success, but also subjective indicators, filling a gap in current research.

Moreover, the structural model revealed that hope has both a direct (*c'*) and an indirect (*ab*) effect on AS, mediated by SWL. The mediation effect was substantial, exceeding 50%, and classified as moderate according to established guidelines (Gunzler et al., 2013; Lange et al., 2017). This highlights the role of hope not only as a direct influencer of AS but also as an indirect influencer through its enhancement of life satisfaction. These insights can inform interventions aimed at boosting academic satisfaction by fostering hope among students. Finally, it is worth noting that the model showed adequate fit for the data, confirming its applicability to the university student population in Ecuador. Regarding the verification of hypotheses proposed in the study, it is observed that they were fulfilled as previously indicated. In this way, adequate levels of hope, SWL and AS were presented (H_1), in addition, these variables interact with each other generating mutual correlations (H_2), hope and SWL are predictors of AS (H_3) and finally SWL is a mediating variable in the relationship between hope and AS (H_4).

About the implications of the study, its results contribute significantly to the field by enhancing our understanding of subjective indicators of academic success, such as AS, a construct often over-



$\chi^2 = 533.9$, $p < .001$, $df = 248$, $\chi^2/df = 2.15$, CFI = .984, TLI = .982, SRMR = .028, RMSEA = .036
$IC_{95\%}$ [.032 - .040]

Figure 3. Structural adjustment model of hope, well-being, and academic satisfaction.
Note. HHI = Hope Hert Indez; SWLS = Satisfaction with Life Scale; AS-S = Academic Satisfaction Scale.

looked in psychoeducational research (Wach et al., 2016). It reveals that hope and SWL serve as moderate, multiple predictors for AS a finding previously unreported. This progress in understanding the functioning and interactions of these attributes paves the way for future research. Specifically, it supports the inclusion of subjective indicators of academic success in evidence-based educational systems and provides a foundation for interventions aimed at improving AS through the cultivation of personal attributes like self-motivation and self-worth.

Limitations

While the study establishes criteria for the predictability of hope and SWL in relation to AS, it does not provide sufficient evidence for multiple causality in the proposed model. Although the findings point towards this possibility, further research is recommended. In particular, more specialised studies, such as experimental or longitudinal regression research with multiple time points, are needed to substantiate these initial observations. Another element to consider is the imbalance that exists among the participants in terms of gender distribution, in which there is an overrepresentation of women. Although the data collection responds to the representation of women in the participation of university students in Ecuador in social science careers and the sampling process, it is also necessary to consider future studies with student participation, balancing the groups by gender to improve the precision of the results obtained.

Conclusions

It is concluded that both SWL and hope are relevant predictors of SA, and this allows us, above all, to estimate elements that can contribute to improve school satisfaction and increase subjective indicators of academic success among university students. Furthermore, it was found that hope has a direct effect with SA, but also an indirect effect using SWL as a mediating variable, which helps to understand the reasons that intertwine these variables.

References

Achkar, A., Leme, V., Soares, A., & Yunes, M. (2019). Life satisfaction and academic performance of elementary school students. *Psico-USF*, *24*, 323–335. https://doi.org/10.1590/1413-82712019240209

Aslan, S., & Duruhan, K. (2021). The effect of virtual learning environments designed according to problem-based learning approach to students' success, problem-solving skills, and motivations. *Education and Information Technologies*, *26*(2), 2253–2283. https://doi.org/10.1007/s10639-020-10354-6

Ato, M., López, J., & Benavente, A. (2013). Un sistema de clasificación de los diseños de investigación en psicología. *Anales de Psicología*, *29*(3), 1038–1059. https://doi.org/10.6018/analesps.29.3.178511

Baños, R., Baena-Extremera, A., & Ortiz-Camacho, M. (2019). Prediction of the satisfaction with the student life, based on teaching competence and satisfaction with the school. *Frontiers in Psychology*, *10*, 2506. https://doi.org/10.3389/fpsyg.2019.02506

Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in socialpsychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Biles, J., Murphy, K., & Moyo, P. (2022). Undergraduate nursing students' course expectations, actual experiences, and associated satisfaction levels: A mixed methods survey. *Teaching and Learning in Nursing*, *17*(1), 102–108. https://doi.org/10.1016/j.teln.2021.10.005

Bortes, C., Ragnarsson, S., Strandh, M., & Petersen, S. (2021). The bidirectional relationship between subjective well-being and academic achievement in adolescence. *Journal of Youth and Adolescence*, *50*(5), 992–1002. https://doi.org/10.1007/s10964-021-01413-3

Brown, T. A. (2015). . *Confirmatory factor analysis for applied research* (Vol. 2) Guilford Publications.

Byrne, B. (2008). Testing for multigroup equivalence of a measuring instrument: A walk through the process. *Psicothema*, *20*(4), 872–882.

Byrne, Z., Peters, J., & Weston, J. (2016). The struggle with employee engagement: Measures and construct clarification using five samples. *Journal of Applied Psychology*, *101*(9), 1201–1227. https://doi.org/10.1037/apl0000124

Cabañero, M., Martínez, M., Cabrero, J., Orts, M., Reig, A., & Tosal, B. (2004). Fiabilidad y validez de la Escala de Satisfacción con la Vida de Diener en una muestra de mujeres embarazadas. *Psicothema*, *16*(3), 448–455.

Cain, L., Moreo, A., & Rahman, I. (2021). Callings and satisfaction among hospitality students: The mediation of thriving and moderation of living a calling. *Journal of Hospitality & Tourism Education*, *33*(2), 89–98. https://doi.org/10.1080/10963758.2020.1791139

Castilla Cabello, H., Urrutia Félix, C., Shimabukuro Tello, M., & Caycho Rodríguez, T. (2014). Análisis psicométrico del Índice de Esperanza de Herth en una muestra no clínica peruana. *Psicología desde el Caribe*, *31*(2), 187–206.

Diener, E., Emmons, R., Larsen, R., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Suh, E. M., Lucas, R., & Smith, H. (1999). Subjective well-being. Three decades of progress. *Psychological Bulletin*, *125*(2), 276–302. https://doi.org/10.1037/0033-2909.125.2.276

Dominguez-Lara, S., Gravini-Donado, M., Moreta-Herrera, R., Quistgaard-Alvarez, A., Barboza-Zelada, L. A., & De Taboada, L. (2022). Propiedades psicométricas del Student Adaptation to College Questionnaire-Educación Remota en estudiantes universitarios de primer año durante la pandemia. *Campus Virtuales*, *11*(1), 81–93. https://doi.org/10.54988/cv.2022.1.965

Duffy, R., Douglass, R., & Autin, K. (2015). Career adaptability and academic satisfaction: Examining work volition and self efficacy as mediators. *Journal of Vocational Behavior*, *90*, 46–54. https://doi.org/10.1016/j.jvb.2015.07.007

Ebrahimi, N., Sabaghian, Z., & Abolghasemi, M. (2023). Investigating relationship of hope and academic success of college students. *Quarterly Journal of Research and Planning in Higher Education*, *17*(2), 1–16.

Foroughi, B., Griffiths, M., Iranmanesh, M., & Salamzadeh, Y. (2022). Associations between Instagram addiction, academic performance, social anxiety, depression, and life satisfaction among university students. *Internatrional Journal of Mental Health and Addiction*, *20*, 2221–2242. https://doi.org/10.1007/s11469-021-00510-5

Franzen, J., Jermann, F., Ghisletta, P., Rudaz, S., Bondolfi, G., & Tran, N. (2021). Psychological distress and well-being among students of health disciplines: The importance of academic satisfaction. *International Journal of Environmental Research and Public Health*, *18*(4), 2151. https://doi.org/10.3390/ijerph18042151

Gunzler, D., Chen, T., Wu, P., & Zhang, H. (2013). Introduction to mediation analysis with structural equation modeling. *Shanghai Archives of Psychiatry*, *25*(6), 390. https://doi.org/10.3969/j.issn.1002-0829.2013.06.009

Haugan, G., Utvær, B., & Moksnes, U. (2013). The Herth Hope Index—A psychometric study among cognitively intact nursing home patients. *Journal of Nursing Measurement*, *21*(3), 378–400. https://doi.org/10.1891/1061-3749.21.3.378

Hayat, A., Shateri, K., Amini, M., & Shokrpour, N. (2020). Relationships between academic self-efficacy, learning-related emotions, and metacognitive learning strategies with academic performance in medical students: A structural equation model. *BMC Medical Education*, *20*(76), 1–11. https://doi.org/10.1186/s12909-020-01995-9

Herth, K. (1991). Development and refinement of an instrument to measure hope. *Scholarly Inquiry for Nursing Practice*, *5*(1), 39–51.

Herth, K. (1992). Abbreviated instrument to measure hope: development and psychometric evaluation. *Journal of Advanced Nursing*, *17*(10), 1251–1259. https://doi.org/10.1111/j.1365-2648.1992.tb01843.x

Jak, S., Jorgensen, T., Verdam, M., Oort, F., & Elffers, L. (2021). Analytical power calculations for structural equation modeling: A tutorial and Shiny app. *Behavior Research Methods*, *53*, 1385–1406. https://doi.org/10.3758/s13428-020-01479-0

Jeffries, V., & Salzer, M. (2022). Mental health symptoms and academic achievement factors. *Journal of American College Health*, *70*(8), 2262–2265. https://doi.org/10.1080/07448481.2020.1865377

Kardas, F., Zekeriya, C., Eskisu, M., & Gelibolu, S. (2019). Gratitude, hope, optimism and life satisfaction as predictors of psychological well-being. *Eurasian Journal of Educational Research*, *19*(82), 81–100.

Kaya, M., & Erdem, C. (2021). Students' well-being and academic achievement: A meta-analysis study. *Child Indicators Research*, *14*(5), 1743–1767. https://doi.org/10.1007/s12187-021-09821-4

Lange, T., Hansen, K. W., Sørensen, R., & Galatius, S. (2017). Applied mediation analyses: A review and tutorial. *Epidemiology and Health*, *39*, e2017035. https://doi.org/10.4178/epih.e2017035

Lent, R., Singley, D., Sheu, H., Schmidt, J., & Schmidt, L. C. (2007). Relation of social-cognitive factors to academic satisfaction in engineering students. *Journal of Career Assessment*, *15*(1), 87–97. https://doi.org/10.1177/1069072706294518

Li, C. H. (2016). Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behavior Research Methods*, *48*(3), 936–949. https://doi.org/10.3758/s13428-015-0619-7

Li, M., Gu, Y., Ma, Y., Liu, M., & Tang, Y. (2022). Positive emotions, hope, and life satisfaction in Chinese college students: How useful is the broaden-and-build model in studying well-being in victims of intimate partner violence? *Journal of Interpersonal Violence*, *37*(13–14), NP12706–NP12715. https://doi.org/10.1177/08862605211005131

Lodi, E., Boerchi, D., Magnano, P., & Patrizi, P. (2017). College satisfaction scales (CSS): The mediating role of contextual satisfaction on the relationship between self-efficacy and general life satisfaction. BPA-Appl. *Psychological Bulletin Journal*, *279*, 51–64.

Lounsbury, J., Park, S., Sundstrom, E., Williamson, J., & Pemberton, E. (2004). Personality, career satisfaction and life satisfaction: Test of a directional model. *Journal of Career Assessment*, *12*, 395–406. https://doi.org/10.1177/1069072704266658

Mana, A., Saka, N., Dahan, O., Ben-Simon, A., & Margalit, M. (2022). Implicit theories, social support, and hope as serial mediators for predicting academic self-efficacy among higher education students. *Learning Disability Quarterly*, *45*(2), 85–95. https://doi.org/10.1177/0731948720918821

Marques, S., Gallagher, M., & Lopez, S. (2017). Hope-and academic-related outcomes: A meta-analysis. *School Mental Health*, *9*, 250–262. https://doi.org/10.1007/s12310-017-9212-9

Medrano, A., & Pérez, E. (2010). Adaptación de la Escala de Satisfacción Académica a la población universitaria de Córdoba. *Summa Psicológica UST*, *7*(2), 5–14.

Moreta-Herrera, R., Lara-Salazar, M., Camacho-Bonilla, P., & Sánchez-Guevara, S. (2019). Análisis factorial, fiabilidad y validez de la Escala de Autoeficacia General (EAG) en estudiantes ecuatorianos. *Psychology, Society & Education*, *11*(2), 193–204. https://doi.org/10.25115/psye.v10i1.2024

Moreta-Herrera, R., López-Calle, C., Ramos-Ramírez, M., & López-Castro, J. (2018). Estructura factorial y fiabilidad del Cuestionario de Salud General de Goldberg (GHQ-12) en universitarios ecuatorianos. *Revista Argentina de Ciencias del Comportamiento*, *10*(3), 35–42. https://doi.org/10.32348/1852.4206.v10.n3.20405

Moreta-Herrera, R., Perdomo-Pérez, M., Reyes-Valenzuela, C., Gavilanes-Gómez, D., Rodas, J., & Rodríguez-Lorenzana, A. (2024). Analysis from the classical test theory and item response theory of the Satisfaction with Life Scale (SWLS) in an Ecuadorian. *Journal of Human Behavior in the Social Environment*, *34*(5), 739–751. https://doi.org/10.1080/10911359.2023.2187915

Moreta-Herrera, R., Rodas, J., & Lara-Salazar, M. (2021). Factor validity of Alcohol Use Disorders Identification Test (AUDIT) using robust estimations in Ecuadorian adolescents. *Alcohol & Alcoholism*, *56*(4), 482–489. https://doi.org/10.1093/alcalc/agaa126

Murphy, E. (2023). Hope and well-being. *Current Opinion in Psychology*, *50*, 101558. https://doi.org/10.1016/j.copsyc.2023.101558

Pahlevan Sharif, S., Amiri, M., Allen, K. A., Sharif Nia, H., Khoshnavay Fomani, F., Hatef Matbue, Y., Goudarzian, A. H., Arefi, S., Yaghoobzadeh, A., & Waheed, H. (2021). Attachment: The mediating role of hope, religiosity, and life satisfaction in older adults. *Health and Quality of Life Outcomes*, *19*(57). https://doi.org/10.1186/s12955-021-01695-y

Peker, A., & Cengiz, S. (2023). Academic monitoring and support from teachers and school satisfaction: The sequential mediation effect of hope and academic grit. *Child Indicators Research*, *16*(4), 1553–1579. https://doi.org/10.1007/s12187-023-10020-6

R Core Team. (2019). *R: A language and environment for statistical computing. R foundation for statistical computing*. R Foundation for Statistical Computing.

Rand, K., Shanahan, M., Fischer, I., & Fortney, S. (2020). Hope and optimism as predictors of academic performance and subjective well-being in college students. *Learning and Individual Differences*, *81*, 101906. https://doi.org/10.1016/j.lindif.2020.101906

Reysen, R., Degges-White, S., & Reysen, M. (2020). Exploring the interrelationships among academic entitlement, academic performance, and satisfaction with life in a college student sample. *Journal of College Student Retention: Research, Theory & Practice*, *22*(2), 186–204. https://doi.org/10.1177/1521025117735292

Ruíz-Olarte, A., Mena-Freire, M., & Moreta-Herrera, R. (2023). Esperanza y salud mental en universitarios del Ecuador: Análisis de regresión estructural. *Psicoperspectivas. Individuo y Sociedad*, *22*(3), 1–14. https://doi.org/10.5027/psicoperspectivas-vol22-issue3-fulltext-2906

Samaha, M., & Hawi, N. (2016). Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Computers in Human Behavior*, *57*, 321–325. https://doi.org/10.1016/j.chb.2015.12.045

Sánchez-Cardona, I., Ortega-Maldonado, A., Salanova, M., & Martínez, I. (2021). Learning goal orientation and psychological capital among students: A pathway to academic satisfaction and performance. *Psychology in the Schools*, *58*(7), 1432–1445. https://doi.org/10.1002/pits.22505

Shi, D., Maydeu-Olivares, A., & Rosseel, Y. (2020). Assessing fit in ordinal factor analysis models: SRMR vs. RMSEA. *Structural Equation Modeling: A Multidisciplinary Journal*, *27*(1), 1–15. https://doi.org/10.1080/10705511.2019.1611434

Snyder, C., Harris, C., Anderson, J., Holleran, S., Irving, L., Sigmon, S., Yoshinobu, L., Gibb, J., Langelle, C., & Harney, P. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, *60*(4), 570. https://doi.org/10.1037//0022-3514.60.4.570

Suldo, S., Riley, K., & Shaffer, E. (2008). A social-cognitive-behavioral model of academic predictors of adolescent's life satisfaction. *School Psychology Quartely*, *32*(1), 56–69. https://doi.org/10.1037/1045-3830.23.1.56

Theobald, M. (2021). Self-regulated learning training programs enhance university students' academic performance, self-regulated learning strategies, and motivation: A meta-analysis. *Contemporary Educational Psychology*, *66*, 101976. https://doi.org/10.1016/j.cedpsych.2021.101976

Vergara-Morales, J., Del Valle, M., Díaz, A., & Pérez, M. (2018). Adaptación de la escala de satisfacción académica en estudiantes universitarios chilenos. *Educational Psychology*, *24*(2), 99–106. https://doi.org/10.5093/psed2018a15

Wach, F., Karbach, J., Ruffing, S., Brünken, R., & Spinath, F. (2016). University students' satisfaction with their academic studies: Personality and motivation matter. *Frontiers in Psychology*, *7*. https://doi.org/10.3389/fpsyg.2016.00055

Weber, M., & Huebner, E. (2015). Early adolescents' personality and life satisfaction: A closer look at global vs. domain-specific satisfaction. *Personality and Individual Differences*, *83*, 31–36. https://doi.org/10.1016/j.paid.2015.03.042

Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement*, *73*(6), 913–934. https://doi.org/10.1177/0013164413495237

Zhao, Y., Ding, Y., Chekired, H., & Wu, Y. (2022). Student adaptation to college and coping in relation to adjustment during COVID-19: A machine learning approach. *PLoS One*, *17*(12), e0279711. https://doi.org/10.1371/journal.pone.0279711