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Socioemotional adaptation of first-year university students in agricultural science programs

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Abstract This study examines the relationship between emotional intelligence (EI) and socioemotional adaptation among first-year students in agricultural science programs at a public Peruvian university. Using a convergent mixed-methods design, the research integrates quantitative and qualitative evidence. In the quantitative phase, the Trait Meta-Mood Scale (TMMS) was administered to 276 students to assess perceived EI—attention, clarity, and repair—while academic records were reviewed to compare entrance exam scores with first-semester grade-point averages (GPAs). In the qualitative phase, 12 semistructured interviews captured students' experiences with emotional regulation and adaptation. Findings showed a significant improvement in academic performance from admission to the end of the first semester ($p < 0.001$), though correlations between EI dimensions and GPA were weak, implying an indirect influence of emotional competencies. Qualitative results added depth, revealing that students view EI as essential for academic success and emotional well-being and use strategies such as breathing exercises, cognitive reframing, and social support to manage stress. Gender differences emerged in academic performance, favoring female students, but EI levels did not differ significantly. The study proposes the University Socioemotional Adaptation Model, which integrates contextualized EI, environmental moderators (e.g., family, institutional, and peer support), and students' emotional learning trajectories during the transition to higher education. The model highlights the dynamic, context-dependent nature of EI and its relevance to academic and professional development. Overall, the findings emphasize the need for socialemotional learning programs that strengthen emotional regulation, resilience, and empathy—particularly in technical and scientific fields—and contribute new evidence from a Latin American context emphasizing socioemotional adaptation as a foundation for university success and sustainable human development.

Keywords: performance, strategy, resilience, transition, higher education

1. Introduction

The transition from secondary school to university presents a complex challenge, as students confront new academic, emotional, and social demands that affect their well-being and performance (Garces et al., 2023; Herrera & Rivera, 2020). This adjustment period, especially intense during the first year, requires students to reorganize coping strategies, form new social networks, and manage elevated academic stress (Huguenel & Conley, 2020). While academic performance has long been linked to socioeconomic background, family environment, and study habits (Li & Dockery, 2015; Tabassum et al., 2022), recent evidence has highlighted the growing importance of emotional intelligence (EI) in the university adjustment process (MacCann et al., 2020; Vera de Valdez et al., 2023).

EI refers to the ability to recognize, understand, and regulate one's own emotions and those of others (Goleman, 1995; Mayer & Salovey, 1997). Although some studies have identified positive associations between EI and academic performance (Delgado et al., 2019; Oyewunmi et al., 2016), findings remain mixed (Afridi et al., 2020; Kuruva & Kashyap, 2023). Such inconsistencies suggest that EI's influence on academic achievement may be mediated by contextual factors such as academic program demands and available social support networks (Scherrer et al., 2025).

This complexity is heightened in demanding fields like agricultural sciences, where students face academic, practical, and sociocultural adaptation challenges (Xiong & Abd.Rahim, 2024). Competencies tied to EI—self-awareness, emotional regulation, and interpersonal skills—are crucial in high-pressure, rapidly changing learning environments (Ertiö et al., 2024). In Peru, ongoing educational reforms emphasize competency-based training (Corzo-Zavaleta et al., 2024), requiring future professionals to demonstrate both technical expertise and socioemotional skills needed for employability and global citizenship (Gaitán-Aguilar et al., 2024). However, Peruvian universities continue to struggle with implementing socioemotional development programs, especially for students from rural backgrounds or those with limited emotional readiness (Johnson & Levitan, 2023).

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Despite advances in international research, Peruvian scholarship still lacks evidence on EI and socioemotional adaptation in disciplines such as agricultural sciences. These programs pose distinct challenges, combining intensive practical training, direct engagement with rural contexts, and a strong vocational identity (Tan et al., 2016). This study therefore seeks to provide contextually grounded empirical evidence on the relationship between EI and the socioemotional adaptation of first-year students in agricultural science programs at a public Peruvian university.

Aligned with this objective, the study explores the following questions:

What is the level of EI among incoming students in different agricultural science specialties?

What socioemotional strategies do they use to adapt to university life?

Is there a relationship between EI dimensions and academic performance during the first semester?

What differences, if any, emerge across gender or academic specialization?

From these questions, the following hypotheses are generated:

H1: First-year agricultural science students achieve significantly higher end-of-semester grade-point averages (GPAs) compared with their university entrance exam scores, indicating positive academic adaptation.

H2: Perceived EI is positively associated with academic performance among first-semester agricultural science students.

H3: EI dimensions and academic performance differ significantly between male and female first-semester students.

H4: Gender significantly influences students' entrance exam performance and their final GPA for the first semester.

2. Materials and Methods

This study adopted a mixed-methods approach using a convergent design (Creswell & Plano, 2017), enabling simultaneous and parallel analysis of quantitative and qualitative data with equal emphasis on both. The purpose was to integrate findings to produce a broader and more contextualized understanding of the relationship between EI and academic performance among first-year agricultural science students through the lens of socioemotional adaptation. Employing mixed methods allowed the study to examine both standardized measures of perceived EI and students' lived experiences. This combination supported data triangulation, strengthened internal validity (Fetters et al., 2013), and provided evidence from both measurable and narrative dimensions.

The population consisted of all students enrolled in the first semester of the eleven undergraduate agricultural sciences programs at the National Agrarian University La Molina during the 2024-I term.

2.1. Quantitative phase

The demographic composition of participating students is shown in Table 1. Although the overall sample reflected a balanced gender distribution (50% male, 50% female), proportions varied by specialty. Biology showed the highest share of male students (71%), followed by zootechnics (62%), while fisheries (69%) and forestry (65%) had the highest proportions of female students.

Table 1 Sample description.

Specialty	Female	%	Male	%	Total
Agronomy	36	56%	28	44%	64
Environmental	16	57%	12	43%	28
Biology	5	29%	12	71%	17
Economy	12	52%	11	48%	23
Estadistics	10	42%	14	58%	24
Forest	11	65%	6	35%	17
Management	15	43%	20	57%	35
Food Industry	13	48%	14	52%	27
Meteorology	7	47%	8	53%	15
Fisheries	9	69%	4	31%	13
Zootechnics	5	38%	8	62%	13
Total	139	50%	137	50%	276

The quantitative phase aimed to measure perceived EI among first-year students across agricultural science specialties at UNALM and examine its relationship with academic performance. Primary data were collected using the Trait Meta-Mood Scale (TMMS), supported by factor analysis and Cronbach's alpha coefficients of 0.86, 0.87, and 0.82 (Espinoza-Venegas et al., 2015). Recent studies have confirmed the instrument's validity (Gómez-López et al., 2025). The TMMS assessed three EI subdimensions: attention, clarity, and repair, with score ranges by gender presented in Table 2.

Secondary data from the academic records unit included university entrance exam scores (range [1–100], min = 15, max = 60) and first-semester weighted GPA (range [1–20], min = 5, max = 17) to evaluate academic performance at two points. Because the scales differed, scores were grouped into three evenly distributed categories—deficient (D), regular (R), and acceptable (A)—to enable comparison (Bennette & Vickers, 2012). These ranges appear in Table 3.

Table 2 Categories for EI levels in the TMMS instrument.

Gender	Level	Attention	Clarity	Reparation
Female	Low (L)	1–24	1–23	1–23
	Medium (M)	25–35	24–34	24–34
	High (H)	36–40	35–40	35–40
Male	Low (L)	1–21	1–25	1–23
	Medium (M)	22–32	26–35	24–35
	High (H)	33–40	36–40	36–40

Table 3 Categories of score levels.

Type of Test	Level	Score
Admission Exam	Deficient (D)	15–30
	Regular (R)	30–45
	Acceptable (A)	45–60
Final Score	Deficient (D)	5–9
	Regular (R)	9–13
	Acceptable (A)	13–17

The nature of the data was also evaluated to determine appropriate statistical tests. Assumptions of normality and variance homogeneity were reviewed to guide the selection of parametric versus nonparametric procedures. Table 4 presents normality test results, and Table 5 displays Levene's test outcomes, which informed the choice of statistical approach for each analysis.

Table 4 Normality test.

	Shapiro–Wilk normality test		
	Statistic	*p*-Value	*n*
Entry Score	0.95599	0.000	275
Final Score	0.9747	0.000	275
Age	0.72067	0.000	275

Table 5 Levene's test for homogeneity of variance.

Dependent Variable	Independent Variable	DF1	DF2	Levene's Statistic	*p*-Value	Test
Admission Score	Attention Level	2	273	1.4833	0.228	Parametric
	Clarity Level	2	273	2.6225	0.074	Parametric
	Reparation Level	2	273	0.5356	0.585	Parametric
	specialty	10	265	1.3135	0.223	Parametric
	Gender	1	274	2.9264	0.088	Parametric
	Modality	10	265	2.4904	0.007*	Nonparametric
Final Score	Attention Level	2	273	0.3814	0.683	Parametric
	Clarity Level	2	273	0.7754	0.461	Parametric
	Reparation Level	2	273	0.725	0.485	Parametric
	specialty	10	265	0.4184	0.937	Parametric
	Gender	1	274	6.3878	0.012*	Nonparametric
	Modality	10	265	1.214	0.281	Parametric

Note: *Sig. at p <= 0.05; df1: Degrees of freedom on independent variable; df2: Degrees of freedom on dependent variable.

2.2. Qualitative phase

The qualitative phase explored in depth the subjective experiences of first-semester agricultural science students at UNALM regarding socioemotional adaptation and the role of EI in academic performance. It was guided by the proposition that agricultural science students use multiple socioemotional adaptation strategies during their first semester.

This proposition shaped the interview guide and thematic analysis, facilitating exploration of emotional regulation, support networks, and the broader social environment.

Participants were selected through convenience sampling with intensity criteria (Robinson, 2014), prioritizing students who voluntarily agreed to share their experiences. Twelve students from different academic programs participated. While this strategy enabled access to rich accounts in an exploratory context, it also introduced potential self-selection bias (Hiratsuka, 2025), acknowledged as a limitation.

Minimal heterogeneity in sampling allowed examination of diverse emotional adaptation experiences within a shared academic setting (Guest et al., 2020). Theoretical saturation was not sought because the goal was descriptive—identifying preliminary adaptation patterns—rather than generating a generalizable theory. This decision aligns with the study's exploratory nature and participant availability. As noted by Marshall et al. (2013), small, well-defined samples can yield

meaningful qualitative insight when participants share similar conditions, such as navigating a common first-year academic transition.

Interviews were conducted in person, audio-recorded with verbal consent, and transcribed verbatim. The guide included open-ended questions addressing emotional regulation, perceptions of the academic environment, and experiences with academic success or struggle. Data were analyzed using inductive thematic coding following Braun and Clarke's (2006) guidelines, which enabled identification of themes grounded in students' narratives. These themes were then compared with TMMS dimensions and the broader theoretical framework (Creswell & Plano, 2017). Given the small sample size, computer-assisted qualitative analysis software was not used; however, principles of analytic traceability and qualitative rigor were maintained (Nowell et al., 2017). This phase offered crucial contextual insight, helping interpret quantitative findings and capturing dimensions not measured by the TMMS, such as social support and individualized adaptation strategies.

2.3. Data integration

Data integration followed the convergent mixed-methods design, with quantitative and qualitative components collected, analyzed, and interpreted in parallel and with equal priority. The aim was to build a holistic understanding of the phenomenon by comparing measured outcomes with students' lived narratives.

To support this integration, the study applied the methodological triangulation framework of Fetters et al. (2013), which identified four types of cross-source relationships: convergent (pattern confirmation), complementary (findings enrich one another), explanatory (qualitative results help interpret quantitative outcomes), and emergent (elements appearing in only one data source). Table 6 presents the integration matrix, summarizing how TMMS findings relate to themes identified through the interviews.

Table 6 Methodological integration matrix.

Dimension/Category	Quantitative Finding (TMMS)	Qualitative Finding (Interviews)	Type of Relationship
Emotional Clarity	Low levels among male students (mean < 25)	Difficulties in understanding emotions reported in male students' narratives	Convergent
Emotional Attention	Medium distribution in both genders	Importance placed on recognizing emotions prior to evaluations	Complementary
Emotional Repair	Highest average level; no significant gender differences	Use of strategies such as breathing, music, and contact with nature	Confirmatory
Academic Performance	Higher final GPA among female students (14.06 vs. 10.14)	Women report greater self-control when dealing with low grades	Explanatory
Social Support	Not directly measured	Family and academic counseling support identified as key factors in interviews	Emergent

3. Results

3.1. Quantitative findings

To test the first hypothesis and determine whether students' entrance exam scores differed significantly from their final academic performance, a paired *t*-test was conducted. Descriptive results showed that the average final GPA (M = 12.15, SD = 2.28) was higher than the average entrance exam score (M = 9.91, SD = 2.02). The paired *t*-test (Table 7) indicated a statistically significant difference between these means ($t(275) = -14.788$, $p < 0.001$). The mean difference of 2.24 points (95% CI: –2.54 to –1.95) suggests a measurable improvement from admission to end-of-semester performance.

Table 7 Results of paired Student's *t*-test.

Section	Variable	Statistic	Value
Descriptive Statistics	Entrance Score	Mean	9.91
		Standard Deviation	2.02
	Final Score	Mean	12.15
		Standard Deviation	2.28
		N	276
t-Test Results	*t*-statistic	t	−14.788
	Degrees of freedom	df	275
	p-value	p	0.000
	Mean Difference		2.24
	Confidence Interval	Lower Bound	−2.54
		Upper Bound	−1.95
Interpretation	Statistical Significance		Yes
	Direction of Difference		Increase
	Magnitude of Difference		Moderate (2.24)

On average, Students' final scores were 2.24 points higher than their entrance exam results. Because the confidence interval excludes zero, the difference is statistically significant; however, the upper bound (–1.95) approaches zero, indicating that the practical magnitude of improvement is moderate. These findings support the first hypothesis, confirming a significant shift between entrance exam scores and final GPA and pointing to positive academic adjustment.

The correlation between final semester grades and entrance exam scores was positive and moderate (r = 0.301), meaning that higher entrance scores generally aligned with stronger semester performance (Table 8). Still, the relationship is not strong, implying that factors beyond prior academic achievement contribute to grade variation. None of the EI subdimensions—attention, clarity, or repair—showed significant correlations with academic performance; all coefficients were weak or negative.

Table 8 Correlations.

Relationship	Correlation Coefficient (r)	Interpretation
Final Score ↔ Entrance Score	0.301	Moderate positive correlation
Final Score ↔ Attention	−0.051	Very weak negative; not significant
Final Score ↔ Clarity	−0.073	Very weak negative; not significant
Final Score ↔ Reparation	−0.041	Very weak negative; not significant

To address the second hypothesis, Chi-square tests were applied across all combinations of academic performance and EI levels. Only one significant relationship emerged: entrance exam performance and emotional clarity (Table 9). Even though prior correlations were not significant, the Chi-square result revealed a meaningful association. This apparent inconsistency underscores the complexity of how emotional variables interact with academic outcomes and is further explored in the qualitative findings. Overall, the second hypothesis receives partial support.

Table 9 Chi-square test.

	Entry Score Exam		
Clarity Level	R	D	A
H	5 (1.88)	2 (0.47)	3 (7.64)
L	26 (26.94)	7 (6.73)	110 (109.32)
M	21 (23.17)	4 (5.79)	98 (94.03)

Note: df = 2; Calculated Chi-square = 13.91 > Critical Chi-square = 9.48; p-value = 0.007.

Regarding the third hypothesis on gender differences in EI levels, gender and specialty filters were applied to average scores across each analytic unit (Table 10). Most students showed medium levels of attention and repair, with emotional repair emerging as their main strength. A concerning pattern appeared in emotional clarity, particularly among male students, who were frequently classified at low clarity levels—potentially limiting their ability to identify and understand emotional states. In contrast, some female students demonstrated high levels of attention and clarity, especially in fields such as meteorology and forestry.

No cases of low emotional repair were reported, suggesting a generally solid foundation for emotional regulation. Nonetheless, clarity remains an area needing improvement, especially in programs such as statistics, economics, and fisheries, where low clarity scores were concentrated. Thus, the third hypothesis is not supported; gender did not exert a statistically significant effect on EI levels among agricultural science students.

To test Hypothesis 4, quartile classification was applied to entrance and final scores to enhance detection of gender effects (Navarro-Castillo et al., 2025). This allowed analysis of gender behavior within the top (Q1) and bottom (Q4) quartiles.

Welch's t-test compared entrance exam means between female (F, n = 67) and male (M, n = 71) students within these quartiles (Figure 1). Results indicated a significant gender difference (t(124.76) = 2.53, p < 0.01), with female students (M = 10.39) outperforming males (M = 9.19). The effect size, estimated via Hedges' g = 0.43 (CI95% [0.09–0.76]), indicates a large gender effect, thereby supporting the fourth hypothesis.

To examine final semester grades, a Mann–Whitney U test was performed for top and bottom quartile subgroups of female (F, n = 66) and male (M, n = 72) students (Figure 2). Results revealed a significant gender difference (U = 3,236.00, p < 0.000). Female students (Mean = 14.06) scored markedly higher than male students (Mean = 10.14). The effect size, calculated through the biserial correlation (r_biserial = 0.35, CI95% [0.18–0.52]), indicates a moderate association between gender and final performance. These findings support the fifth hypothesis, confirming gender-based differences in first-semester academic outcomes.

3.2. Qualitative findings

Through thematic coding, the qualitative analysis identified 12 categories that describe students' socioemotional adaptation and their EI. These categories correspond to frameworks developed by Mayer and Salovey (1997), Goleman (1995), Lazarus and Folkman (1984), and Bronfenbrenner (1979), offering a robust conceptual interpretation.

Table 10 Results of the tests by specialty and gender.

Specialty	Gender	Academic test mean		Emotional test mean					
		Admission Score	Final Score	Attention	Level	Clarity	Level	Reparation	Level
Agronomy		9.64	11.56						
	Female	9.78	11.59	25	L	23	L	26	M
	Male	9.46	11.52	24	M	23	L	28	M
Environmental		11.24	13.00						
	Female	11.15	13.00	23	L	23	L	26	M
	Male	11.37	13.00	25	M	24	L	26	M
Biology		10.16	12.41						
	Female	11.04	13.08	24	L	23	L	23	L
	Male	9.79	12.13	24	M	26	M	30	M
Economy		10.30	12.32						
	Female	10.28	13.08	22	L	23	L	28	M
	Male	10.32	11.49	22	M	25	L	29	M
Estadistics		10.79	12.65						
	Female	11.75	12.82	24	L	26	M	27	M
	Male	10.11	12.53	21	L	24	L	28	M
Forest		9.75	12.16						
	Female	9.86	12.18	26	M	28	M	28	M
	Male	9.55	12.13	25	M	23	L	27	M
Management		9.48	12.31						
	Female	10.15	11.70	22	L	25	M	31	M
	Male	8.99	12.77	23	M	26	M	32	M
Food Industry		10.34	12.33						
	Female	10.46	12.52	23	L	23	L	27	M
	Male	10.23	12.16	24	M	24	L	27	M
Meteorology		8.70	12.03						
	Female	8.64	11.45	26	M	30	M	33	M
	Male	8.75	12.54	25	M	22	L	24	M
Fisheries		8.82	11.10						
	Female	9.35	11.10	24	L	22	L	26	M
	Male	7.63	11.09	22	M	22	L	26	M
Zootechnics		8.62	11.16						
	Female	9.36	11.81	22	L	24	M	29	M
	Male	8.16	10.76	25	M	26	M	26	M
Total		8.25	10.84						
	Female	8.02	10.63	24	L	25	M	27	M
	Male	7.79	10.43	24	M	24	L	27	M

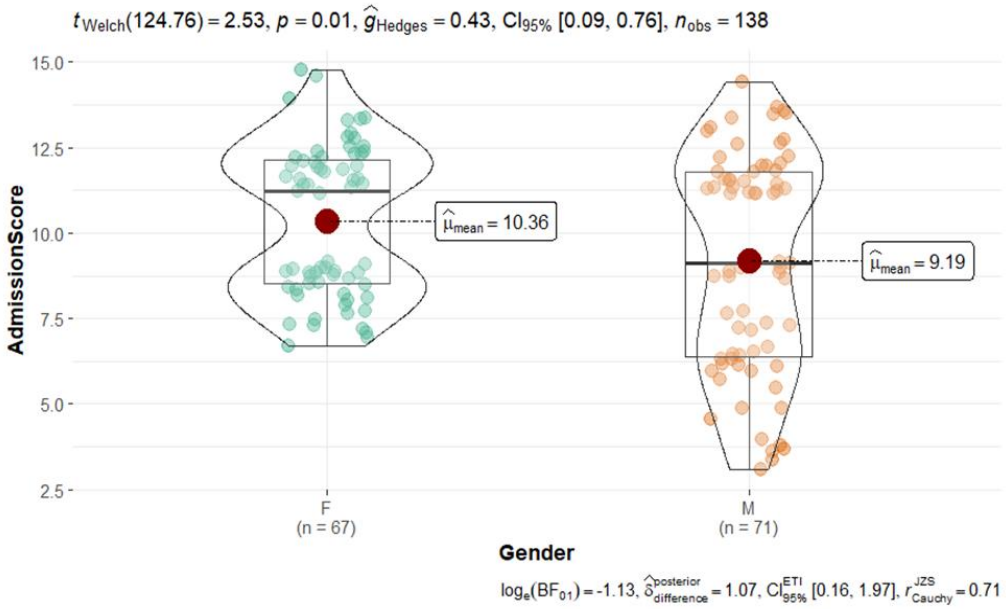

Figure 1 Q1–Q4 gender and entry score.

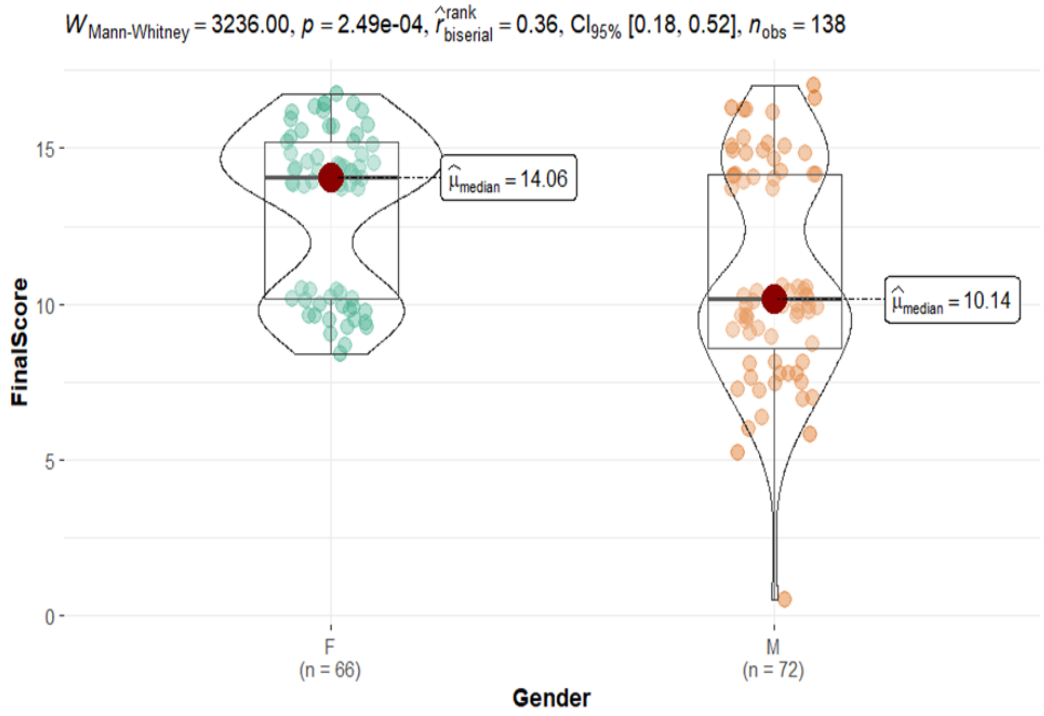

Figure 2 Q1–Q4 gender and final score.

Findings reinforced and extended EI theory by clarifying how students perceive, understand, and regulate their emotions—and how these skills shape academic performance and career aspirations. Coping strategies aligned with Lazarus and Folkman's transactional model, while Bronfenbrenner's ecological systems theory contextualized the influence of academic environments and social or institutional support on socioemotional adjustment.

Under the category "Definition of EI" (DIE), students described EI as managing and understanding both personal and others' emotions. They associated EI with better academic outcomes, emotional balance, and a heightened ability to regulate emotional states.

Student 1: "It is like the ability to control your emotions, to understand them, and not let yourself be carried away by them."

Student 8: "...a skill we use to achieve better academic results, perhaps without negatively affecting our emotional state."

The category, "Capacity to Understand and Manage Emotions (CPCME)," captured first-year students' emotional awareness in the academic setting. Students described anxiety during evaluations and frustration in group work, often noting they were still developing strategies to manage these situations. This category highlights varying levels of emotional awareness and early stages of regulation.

Student 4: "In group assignments, I sometimes get frustrated when not everyone contributes equally."

Student 12: "Well, personally, I wouldn't say I have great ability… I'm just beginning to learn how to handle stressful academic situations."

The category, "Influence of EI on Academic Performance (IIEDA)," reflected students' belief that EI positively affects achievement. They emphasized that emotional regulation and calmness enhance concentration and study habits. Self-control was also seen as important for managing negative emotions after poor academic outcomes and separating personal issues from academic responsibilities.

Student 3: "Yes, I believe it does have an influence… if you're calm and know how to manage your emotions, you can concentrate better on studying."

Student 11: "...I have self-control… if I fail or get a bad grade; I know how to handle it."

"Analysis of Critical Situations Where EI Was Crucial (SCDIEFC)" showed that EI shaped students' university experiences in four areas: group work, test anxiety, environmental adaptation, and balancing personal and academic issues during crises. Calmness in group assignments, presentation-related self-regulation, and prioritizing academic tasks over emotional reactions revealed self-awareness, motivation, and resilience. These examples underscore the relevance of EI for academic success and point to the need for institutional programs that strengthen socioemotional skills. Future work should include expanded samples, detailed coding procedures, and longitudinal analyses to examine EI development over time.

Student 4: "In group work, when there are disagreements, I try to stay calm and find a solution."

The category, "Specific Emotional Regulation Strategies Used (HEMEU)," described the concrete techniques first-year Agricultural Science students use to regulate emotions in the academic context. These include physiological methods (e.g., deep breathing, and relaxation), cognitive strategies (reframing), and behavioral approaches such as exercise, study breaks, communication, seeking support, time in nature, healthy eating, and interacting with pets.

Student 5: "...deep breathing… inhaling for four seconds and then exhaling slowly to try to relax..."

Student 12: "When I'm really stressed, I go and hug my dogs..."

These diverse strategies reflect the individuality of emotional regulation and the need to identify techniques best suited to each student. The category, "Strategies to Manage Negative Emotions (EMEN)," highlighted the ways students cope with frustration, stress, and discouragement. Strategies include separating study spaces from stressors, taking breaks, switching tasks, distraction techniques, and reframing academic obligations to reduce pressure.

Student 3: "If I get frustrated while studying, I sometimes switch topics or take a break."

Student 6: "I try to distract my mind for a while from whatever is distressing me..."

Student 10: "I play music so it doesn't feel like a chore."

These responses show that students are developing active strategies to manage negative emotions—an essential part of academic adaptation. The category, "Self-Assessment of EI (AIE)," revealed varied student perceptions of their emotional competencies. Many describe a developing or mixed sense of EI, acknowledging weaknesses such as limited regulation strategies. Some express low self-confidence in their emotional abilities, while others can identify emotions but lack tools to manage them. Overall, students demonstrate both awareness of limitations and willingness to improve.

Student 7: "I feel that I'm not capable of managing my emotions in different situations."

Student 10: "I can identify my emotions… but I don't have good mechanisms to control them."

The category, "Emotional Skills for University Success (HEEU)," captured the socioemotional abilities students view as essential for academic achievement. They highlight stress management, self-control, resilience, adaptability, empathy, communication, and teamwork as crucial for navigating university challenges and maintaining a positive outlook.

Student 6: "The most important thing is stress management."

Student 10: "A lot of social skills—talking to people, leadership, communication, empathy."

The category, "Factors Influencing Academic Performance (FIDA)," encompasses organizational skills, time management, personal effort, and emotional well-being. Students emphasize the importance of good organization for reducing stress, maintaining focus, and completing tasks effectively. Some note that comparing themselves to peers can harm emotional balance and affect performance.

Student 4: "If you manage your time well, you can get everything done without so much stress."

Student 8: "Effort and dedication strongly influence academic performance."

The category, "Impact of the Academic Environment on Emotions and Performance (IEAER)," examined how workload, peer dynamics, and teaching quality shape students' emotional states and academic outcomes. Heavy workloads, high-pressure environments and competition often generate stress or anxiety, while collaborative atmospheres and supportive faculty help students feel more secure.

Student 6: "Sometimes the workload is too much and affects performance."

Student 8: "A high-pressure or competitive environment can cause anxiety."

Student 10: "Talking to professors really helps me."

The category, "Types of Support Received (TAR)," highlighted how family, friends, and institutional services contribute to academic and emotional well-being. Family support provides motivation and stability; friends offer emotional relief; and institutional services—such as counseling and psycho-pedagogical guidance—support both academic progress and emotional regulation.

Student 6: "Mainly from my family—they always encourage me."

Student 11: "The university offered psycho-pedagogical sessions that helped academically and emotionally."

The category, "How EI Will Help Achieve Professional Goals (CIEAAM)," emphasized EI as crucial for workplace success. Students identify EI as key for teamwork, communication, stress management, resilience, leadership, and maintaining balance between personal and professional life. They see emotional regulation as central to performing effectively under pressure and building strong workplace relationships.

Student 3: "If you know how to manage your emotions, you can work better in a team."

Student 8: "Stress management will be useful in any job because there's always pressure."

In summary, the qualitative findings show that first-year agricultural science students possess a solid conceptual understanding of EI and recognize its influence on socioemotional adaptation and academic performance. Their self-assessments reveal both limitations and openness to growth. They identified stress management, resilience, communication, and interpersonal skills—consistent with Lazarus and Folkman's coping theory—as essential for academic and professional demands. They also recognize the impact of the academic environment and the importance of support networks, in line with Bronfenbrenner's ecological model. These insights highlight EI as critical for academic success and future professional goals, underscoring the need to promote emotional skill development in higher education.

3.3. Proposed integrative model

This study proposed the University Socioemotional Adaptation Model (USAM) (Figure 3), an integrative framework explaining academic performance among first-year students in technical and scientific programs from a contextualized EI perspective.

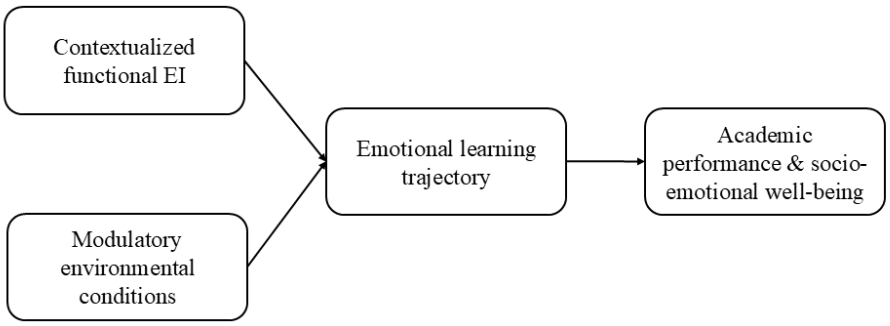

Figure 3 USAM Integrative model.

Unlike traditional models focused solely on intrapersonal EI, USAM articulates three main components:

3.3.1. Contextualized functional EI

Beyond TMMS subdimensions, the model includes effective emotional expression in collaborative settings, emotional regulation during fieldwork, and resilience in demanding academic contexts (MacCann et al., 2020; Taha et al., 2025).

3.3.2. Modulatory environmental conditions

The model incorporates contextual variables such as institutional, family, and peer support; classroom dynamics; curriculum workload; and access to natural environments as stress modulators (Wu et al., 2024; Stansfeld & Khatib, 2011).

3.3.3. Emotional learning trajectory

USAM conceptualizes EI as evolving through adaptive cycles—vulnerability, adjustment, and self-regulation—during the school-to-university transition, consistent with social-emotional learning frameworks (CASEL; Basu & Mermillod, 2011).

4. Discussion

The main objective of this study was to analyze the relationship between EI and academic performance among first-year Agricultural Science students. Although quantitative findings did not show a statistically significant correlation between EI and academic outcomes, the qualitative interviews offered a more nuanced view. Students consistently identified EI as essential for socioemotional adaptation and academic success, partially validating this relationship from an experiential perspective.

The lack of a significant correlation between EI (as measured by the TMMS) and academic performance contrasts with previous studies reporting positive associations (Nguyen et al., 2020). This discrepancy may relate to distinctions between trait or perceived EI and ability-based EI. The TMMS captures perceived clarity, attention, and repair—constructs aligned with trait EI. As noted by Nieto-Carracedo et al. (2024), trait EI may be less directly tied to academic results than ability-based EI as conceptualized by Salovey and Mayer (1990).

The results indicate that competencies such as self-awareness, regulation, motivation, empathy, and social skills meaningfully influence students' personal and professional development. This aligns with Goleman's (1995) mixed model, which emphasizes how students' experiences shape their capacity to manage stress, anxiety, and frustration. MacCann et al. (2020) also suggest that EI may influence performance indirectly through mediating variables such as motivation and self-regulation.

Students in this study conceptualize EI as a set of cognitive skills related to perceiving, using, understanding, and managing emotions—consistent with Salovey and Mayer's (1990) definition of EI as monitoring emotions, discriminating among them, and using emotional information to guide thinking and action.

It is likely that the actual ability to perceive, understand, and regulate emotions—rather than the perception of possessing these abilities—is a stronger predictor of academic success. Among first-year agricultural students, perceiving oneself as emotionally competent may not translate into effective behavioral regulation (Lo et al., 2024) or the use of emotions to support goal-oriented thinking (Cifuentes-Férez & Fenollar, 2017). The improvement observed in semester grades may

reflect an adaptation period in which students develop coping strategies (Pashchenko et al., 2024), consistent with social-emotional learning principles (Taha et al., 2025).

Students also identified social interactions and support networks as central to adaptation. Those who could understand peers' or professors' emotions and use this information to collaborate or seek assistance displayed greater academic resilience. These findings align with Saleem and Zia (2024), who emphasize that help-seeking and collaboration foster perseverance and adaptive responses under pressure.

Narratives about overcoming initial demotivation further illustrate the role of intrinsic motivation and the use of emotions to guide action—factors not fully captured by global measures of perceived EI. These insights align with Navarro-Castillo et al. (2025), who argue that intrinsic motivation promotes sustained engagement and helps students overcome early academic challenges.

The study also highlights the importance of social support from family, peers, and institutions in buffering stress and building belonging. These findings correspond with Yundong et al. (2024), who demonstrate that social support strengthens psychological well-being and facilitates successful transitions into university life.

Finally, the wide range of emotional coping strategies described by students underscores the need for tailored support programs. This recommendation aligns with Rachmawati et al. (2023) and Lopez (2020), who advocate for interventions adapted to individual characteristics, recognizing that no single method is universally effective.

5. Conclusions

This study examined the relationship between EI and academic performance among first-year Agricultural Science students at a Peruvian public university. Although the quantitative analysis did not identify a significant association between perceived EI and academic performance, the qualitative findings offered a deeper understanding. Students recognized EI as essential for socioemotional adaptation and academic success, partially supporting this relationship from an experiential standpoint.

For academia, these findings indicate that EI research should extend beyond self-report instruments and include performance-based measures that capture observable emotional competencies. The results also support theoretical models that incorporate contextual variables, such as the USAM, which integrates personal, social, and environmental influences.

For the educational sector, the study underscores the importance of fostering socioemotional competencies early in students' academic pathways, especially in high-demand fields such as agricultural sciences. This includes implementing personalized SEL programs, mentoring systems, and emotional support strategies aligned with students' vocational, cultural, and socioeconomic backgrounds.

For practitioners, including advisors, instructors, and educational psychologists, the findings highlight that students possess a variety of emotional coping strategies, from physiological techniques to the use of social support. Effective interventions should therefore build upon these existing strengths and create opportunities for students to reflect on and refine their emotional regulation skills in relation to academic and professional goals.

The study's main limitations include reliance on a self-perceived EI instrument, which may not reflect actual emotional competencies, and a qualitative sample based on convenience sampling, which limits generalizability. Future research should incorporate performance-based EI measures, conduct longitudinal studies to track EI development, and include cross-university comparisons. It is also recommended to examine how specific EI components—such as emotional regulation in fieldwork or empathy in collaborative assignments—affect performance in practical courses central to agricultural science education.

6. Declarations

6.1. Ethical considerations

Not applicable.

6.2. Use of artificial intelligence (AI)

The authors declare that the generative artificial intelligence (AI) tool Chat GPT-5.2 Pro was used exclusively for language editing and/or grammatical improvement. The use of AI did not influence the scientific content, study design, data analysis, data interpretation, results, or conclusions of the manuscript. Full responsibility for the content remains with the authors.

6.3. Conflict of Interest

The authors declare no conflicts of interest.

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References

Afridi, F., Barooah, B., & Somanathan, R. (2020). Improving learning outcomes through information provision: Experimental evidence from Indian villages. *Journal of Development Economics*, *146*, 102276. https://doi.org/10.1016/j.jdeveco.2018.08.002

Ashlock, J., Stojnic, M., & Tufekci, Z. (2022). Gender Differences in Academic Efficacy across STEM Fields. *Sociological Perspectives*, *65*(3), 555–579. https://doi.org/10.1177/07311214211028617

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Harvard University Press. https://doi.org/10.2307/j.ctv26071r6

Chowkase, A. A. (2023). Social and emotional learning for the greater good: Expanding the circle of human concern. *Social and Emotional Learning: Research, Practice, and Policy*, *1*, 100003. https://doi.org/10.1016/j.sel.2023.100003

Cifuentes-Férez, P., & Fenollar Cortés, J. (2017). On the impact of self-esteem, emotion regulation and emotional expressivity on student translators' performance. *Vigo International Journal of Applied Linguistics*, *14*, IN PRESS.

Conesa, P. J., Onandia-Hinchado, I., Duñabeitia, J. A., & Moreno, M. Á. (2022). Basic psychological needs in the classroom: A literature review in elementary and middle school students. *Learning and Motivation*, *79*, 101819. https://doi.org/10.1016/j.lmot.2022.101819

Cortes Escaffi, B., Flores Ferro, E., Hernández Briones, P. B., Ramírez Precht, T., Oyarce Lagos, J., Maureira Cid, F., Castillo Retamal, F., Páez Herrera, J. D. C., Arroyo Jofre, P., Lagos Olivos, C., Pérez Díaz, S., & Parada Yáñez, I. (2025). Relación de la autopercepción de liderazgo con la habilidad emocional en estudiantes de Educación Física de Chile. *Retos: nuevas tendencias en educación física, deporte y recreación*, *67*, 216–227.

Corzo-Zavaleta, J., Alva, R. Y., Vargas, S. V., Medina, E. F., Somoza, Y. P., & Andrade-Arenas, L. (2021). Relationship between Stress and Academic Performance: An Analysis in Virtual Mode. *International Journal of Advanced Computer Science and Applications (IJACSA)*, *12*(12), Article 12. https://doi.org/10.14569/IJACSA.2021.01212100

Corzo-Zavaleta, J., Navarro-Castillo, Y., & Anchante-Arias, J. A. (2024). La competencia comunicativa en la Carrera de Ingeniería de Gestión Empresarial de la UNALM: Un estudio de caso. *Tierra Nuestra*, *18*(2), Article 2. https://doi.org/10.21704/rtn.v18i2.1942

Creswell, J., & Plano, V. (2017). *Designing and Conducting Mixed Methods Research* (3rd ed.). SAGE Publications, Inc. https://collegepublishing.sagepub.com/products/designing-and-conducting-mixed-methods-research-3-241842

Delgado, B., Martínez, M. C., Rodríguez, J. R., & Escortell, R. (2019). La autoeficacia académica y la inteligencia emocional como factores asociados al éxito académico de los estudiantes universitarios. *Revista Electrónica Gestión de Las Personas y Tecnología*, *12*(35), 46–60.

Deng, X., Chen, S., Li, X., Tan, C., Li, W., Zhong, C., Mei, R., & Ye, M. (2023). Gender differences in empathy, emotional intelligence and problem-solving ability among nursing students: A cross-sectional study. *Nurse Education Today*, *120*, 105649. https://doi.org/10.1016/j.nedt.2022.105649

Dewiyanti, N. G., Nurihsan, J., & Budiman, N. (2025). The Influence of Emotional Intelligence on Student Success: A Literature Review. *Proceeding of International Seminar On Student Research In Education, Science, and Technology*, *2*(0), 69–75.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1111/j.1467-8624.2010.01564.x

Ertiö, T., Eriksson, T., Rowan, W., & McCarthy, S. (2024). The role of digital leaders' emotional intelligence in mitigating employee technostress. *Business Horizons*, *67*(4), 399–409. https://doi.org/10.1016/j.bushor.2024.03.004

Espinoza-Venegas, M., Sanhueza-Alvarado, O., Ramírez-Elizondo, N., & Sáez-Carrillo, K. (2015). A validation of the construct and reliability of an emotional intelligence scale applied to nursing students. *Revista Latino-Americana de Enfermagem*, *23*, 139–147. https://doi.org/10.1590/0104-1169.3498.2535

Esteban-Guitart, M., Sierralta, A., Searle, D., & Subero, D. (2024). Aportes de la teoría bioecológica de Bronfenbrenner a la investigación e intervención educativa. *Innovación educativa*, *34*, Article 34. https://doi.org/10.15304/ie.34.9638

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving Integration in Mixed Methods Designs—Principles and Practices. *Health Services Research*, *48*(6pt2), 2134–2156. https://doi.org/10.1111/1475-6773.12117

Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology*, *46*(4), 839–852. https://doi.org/10.1037/0022-3514.46.4.839

Gaitán-Aguilar, L., Hofhuis, J., & Jansz, J. (2024). A review of research on global citizenship in higher education: Towards a holistic approach. *International Journal of Intercultural Relations*, *102*, 102050. https://doi.org/10.1016/j.ijintrel.2024.102050

Garavito-Checalla, E. C., Valero-Ancco, V. N., Roque-Yupanqui, J. A., Atencio-Maquera, N., Cariapaza-Mamani, G. J., & Coapaza-Mamani, M. Y. (2025). Socio-Emotional Competencies and Academic Performance in Latin American University Students: An Approach to Sustainable Development. *Journal of Lifestyle and SDGs Review*, *5*(1), e02935–e02935. https://doi.org/10.47172/2965-730X.SDGsReview.v5.n01.pe02935

Garces, N. N. G., Fajardo, Z. I. E., Villao, M. L. S., Caguana, D. R. M., & Esteves, A. C. Q. (2023). Relationships between Mental Well-being and Academic Performance in University Students: A Systematic Review. *Salud, Ciencia y Tecnología - Serie de Conferencias*, *2*, 470–470. https://doi.org/10.56294/sctconf2023470

Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ for character, health and lifelong achievement*. Bantam Books.

Gómez-López, M., Cerro, J. A. B. del, Manzano-Sánchez, D., & Granero-Gallegos, A. (2025). Motivación e inteligencia emocional en las clases de Educación Física de secundaria. *Revista Complutense de Educación*, *36*(1), Article 1. https://doi.org/10.5209/rced.93116

Guest, G., Namey, E., & Chen, M. (2020). A simple method to assess and report thematic saturation in qualitative research. *PLOS ONE*, *15*(5), e0232076. https://doi.org/10.1371/journal.pone.0232076

Herrera, D., & Rivera, J. (2020). La Educación rural: Un desafío para la transición a la Educación Superior. *Revista de Estudios y Experiencias En Educación*, *19*(41), 87–105.

Hiluf, B., & Alemu, M. (2024). Emotional and motivational intelligence in Ethiopian high school learners' writing performance in relation to gender differences. *Asian-Pacific Journal of Second and Foreign Language Education*, *9*(1), 55. https://doi.org/10.1186/s40862-024-00282-0

Hiratsuka, T. (2025). The volunteer participation paradox: Ethical tensions between self-selection and targeted sampling. *Research Methods in Applied Linguistics*, *4*(2), 100206. https://doi.org/10.1016/j.rmal.2025.100206

Huguenel, B. M., & Conley, C. S. (2020). Transitions to Higher Education. In *The Encyclopedia of Child and Adolescent Development* (pp. 1–11). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781119171492.wecad506

Johnson, K. M., & Levitan, J. (2023). Oppositionally-intertwined ecologies: A single-system, multi-theory mapping of marginalized students' experiences. *New Directions for Higher Education*, *2023*(204), 71–82. https://doi.org/10.1002/he.20492

Kaushik, D., Garg, M., & Mishra, A. (2023). Exploring Developmental Pathways: An In-depth Analysis of Bronfenbrenner's Bioecological Model. *IJFMR - International Journal For Multidisciplinary Research*, *5*(6). https://doi.org/10.36948/ijfmr.2023.v05i06.9154

Kilby, C. J., Sherman, K. A., & Wuthrich, V. (2018). Towards understanding interindividual differences in stressor appraisals: A systematic review. *Personality and Individual Differences*, *135*, 92–100. https://doi.org/10.1016/j.paid.2018.07.001

Kuruva, M. B., & Kashyap, M. (2023). Impact Of Emotional Intelligence On Academic Performance Of University Students: Empirical Evidence. *Journal of Mountain Research*, *18*(1). https://doi.org/10.51220/jmr.v18i1.26

Lazarus, R. S., and Folkman, S. (1984). Stress, Appraisal, and Coping. New York: Springer

Lo, M.-T., Hsu, F.-H., & Chen, W.-L. (2024). Navigating time and space: Examining the impact of contextual factors and self-regulation strategies on university students' momentary engagement. *Educational Psychology*, *44*(8), 823–851. https://doi.org/10.1080/01443410.2024.2402329

Lopez Hurtado, I. (2020). *Social-emotional learning in higher education: Examining the relationship between social-emotional skills and students' academic success*. https://hdl.handle.net/11299/216365

MacCann, C., Jiang, Y., Brown, L. E. R., Double, K. S., Bucich, M., & Minbashian, A. (2020). Emotional intelligence predicts academic performance: A meta-analysis. *Psychological Bulletin*, *146*(2), 150–186. https://doi.org/10.1037/bul0000219

Marshall, B., Cardon ,Peter, Poddar ,Amit, & and Fontenot, R. (2013). Does Sample Size Matter in Qualitative Research?: A Review of Qualitative Interviews in is Research. *Journal of Computer Information Systems*, *54*(1), 11–22. https://doi.org/10.1080/08874417.2013.11645667

Maureira, F., Flores, E., Sepúlveda, S., Lagos, B., Contreras, S., Maureira, G., & González, V. (2023). Inteligencia emocional en estudiantes de Educación Física. *Revista Ciencias de la Actividad Física UCM*, *24*(1), Article 1. https://doi.org/10.29035/rcaf.24.1.7

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In *Emotional development and emotional intelligence: Educational implications* (pp. 3–34). Basic Books.

McNulty, J. P., & Politis, Y. (2023). Empathy, emotional intelligence and interprofessional skills in healthcare education. *Journal of Medical Imaging and Radiation Sciences*, *54*(2), 238–246. https://doi.org/10.1016/j.jmir.2023.02.014

Mercer, N., & Howe, C. (2012). Explaining the dialogic processes of teaching and learning: The value and potential of sociocultural theory. *Learning, Culture and Social Interaction*, *1*(1), 12–21. https://doi.org/10.1016/j.lcsi.2012.03.001

Navarro-Castillo, Y., Pablo-Lerchundi, I., & Morales-Alonso, G. (2025). Kahoot! As a tool to enhance learning for engineering students in economics & management courses. *The International Journal of Management Education*, *23*(2), 101173. https://doi.org/10.1016/j.ijme.2025.101173

Nguyen, K. T., Duong, T. M., Tran, N. Y., Ha, A. T., & Phung, Y. N. T. (2020). The Impact of Emotional Intelligence on Performance: A Closer Look at Individual and Environmental Factors. *The Journal of Asian Finance, Economics and Business*, *7*(1), 183–193. https://doi.org/10.13106/jafeb.2020.vol7.no1.183

Niebles, M. B. (2023). La Teoría de los Sistemas Ecológicos de Urie Bronfenbrenner como marco para comprender la deserción universitaria. *Collectivus, Revista de Ciencias Sociales*, *10*(2), Article 2. https://doi.org/10.15648/Collectivus.vol10num2.2023.3823

Nieto-Carracedo, A., Gómez-Iñiguez, C., Tamayo, L. A., & Igartua, J.-J. (2024). Emotional Intelligence and Academic Achievement Relationship: Emotional Well-being, Motivation, and Learning Strategies as Mediating Factors. *Educational Psychology*, *30*(2), 67–74. https://doi.org/10.5093/psed2024a7

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods*, *16*(1), 1609406917733847. https://doi.org/10.1177/1609406917733847

Odanga, S. J. O. (2024). Academic Stress and Its Management Strategies Among University Students. In *Student Stress in Higher Education* (pp. 62–78). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-0708-3.ch004

Oh, I.-S., Le, H., Hu, D., & Robbins, S. B. (2024). Any port in a storm: Emotional stability as a stabilizer for the job performance-voluntary turnover relationship. *Journal of Vocational Behavior*, *150*, 103973. https://doi.org/10.1016/j.jvb.2024.103973

Oyewunmi, A. E., Osibanjo, A. O., & Adeniji, A. A. (2016). Emotional Intelligence and Academic Performance of Undergraduates: Correlations, Implications and Interventions. *Mediterranean Journal of Social Sciences*, *7*(1), Article 1.

Pashchenko, O., Medvedovska, T., Terkhanova, O., Baidak, A., & Danyliuk, Y. (2024). The impact of emotional intelligence on academic achievement. *PrOsvita*, *2*, Article 2. https://doi.org/10.36074/PrOsvita.issue2.004

Pellitteri, J. (2021). Emotional Intelligence and Leadership Styles in Education. *Psychologie a Její Kontexty*, *2*(12), 39–52. https://doi.org/10.15452/PsyX.2021.12.0010

Plazas Rodríguez, É. J., & Parra Herrera, M. F. (2022). *Impacto en las dimensiones de la Inteligencia Emocional en el marco del Covid-19 a través de una propuesta pedagógica con la técnica de taller reflexivo*. http://hdl.handle.net/10785/9628

Popescu, G. C., Popescu, M., Khondker, M., Clay, D. E., Pampana, S., & Umehara, M. (2022). Agricultural sciences and the environment: Reviewing recent technologies and innovations to combat the challenges of climate change, environmental protection, and food security. *Agronomy Journal*, *114*(4), 1895–1901. https://doi.org/10.1002/agj2.21164

Rachmawati, U., Widiatmoko, M., Ardini, F. M., Distira, R. P. A., & Salsabila, N. A. (2023). Coping Stress: How Students Cope with Academic Stress? *Journal of Education and Counseling (JECO)*, 64–69. https://doi.org/10.32627/jeco.v4i1.992

Robinson, O. C. (2014). Sampling in Interview-Based Qualitative Research: A Theoretical and Practical Guide. *Qualitative Research in Psychology*, *11*(1), 25–41. https://doi.org/10.1080/14780887.2013.801543

Saleem, T., & Zia, A. (2024). Effects of Social Support on Academic Resilience of Undergraduate Students. *UMT Education Review*, *7*(1), Article 1. https://doi.org/10.32350/uer.71.06

Salovey, P., & Mayer, J. D. (1990). Emotional Intelligence. *Imagination, Cognition and Personality*, *9*(3), 185–211. https://doi.org/10.2190/DUGG-P24E-52WK-6CDG

Scherrer, V., Breit, M., & Preckel, F. (2025). The stability of students' academic achievement in school: A meta-analysis of longitudinal studies. *Educational Research Review*, *48*, 100687. https://doi.org/10.1016/j.edurev.2025.100687

Shengyao, Y., Xuefen, L., Jenatabadi, H. S., Samsudin, N., Chunchun, K., & Ishak, Z. (2024). Emotional intelligence impact on academic achievement and psychological well-being among university students: The mediating role of positive psychological characteristics. *BMC Psychology*, *12*(1), 389. https://doi.org/10.1186/s40359-024-01886-4

Shrestha, T., Voon Yi Chi, C., Cassarino, M., Foley, S., & Di Blasi, Z. (2025). Factors influencing the effectiveness of nature-based interventions (NBIs) aimed at improving mental health and wellbeing: An umbrella review. *Environment International*, *196*, 109217. https://doi.org/10.1016/j.envint.2024.109217

Silke, C., Davitt, E., Flynn, N., Shaw, A., Brady, B., Murray, C., & Dolan, P. (2024). Activating Social Empathy: An evaluation of a school-based social and emotional learning programme. *Social and Emotional Learning: Research, Practice, and Policy*, *3*, 100021. https://doi.org/10.1016/j.sel.2023.100021

Supervía, U. P., Bordás, S. C., & Robres, Q. A. (2022). The mediating role of self-efficacy in the relationship between resilience and academic performance in adolescence. *Learning and Motivation*, *78*, 101814. https://doi.org/10.1016/j.lmot.2022.101814

Taha, N., Karim, N., & Vinayagan, N. (2025). Impact of Social-Emotional Learning (SEL) Programmes on Emotional Intelligence and Academic Achievements of Students. *International Journal of Research and Innovation in Social Science*. https://rsisinternational.org/journals/ijriss/articles/impact-of-social-emotional-learning-sel-programmes-on-emotional-intelligence-and-academic-achievements-of-students/

Tahirbegi, D. (2023). Exploring emotion regulation in small ensemble contexts; three cases from higher music education. *Learning, Culture and Social Interaction*, *42*, 100741. https://doi.org/10.1016/j.lcsi.2023.100741

Tan, D. K. Y., Koppi, A., & Field, D. J. (2016). First year agricultural science student perspectives in graduate attribute development through problem-based learning. *International Journal of Innovation in Science and Mathematics Education*, *24*(1). https://openjournals.library.sydney.edu.au/CAL/article/view/8481

Urueña, A. (2025). Harnessing expired patents for social innovation: A challenge-based learning approach in engineering education. *IJERI: International Journal of Educational Research and Innovation*, *24*, Article 24. https://doi.org/10.46661/ijeri.11769

Vera de Valdez, L. R., Maidana de Zarza, A., Rodríguez Fernández, P., Acosta de Duarte, D. E., & Silva de Ferreira, L. L. (2023). Inteligencia emocional y su relación con el rendimiento académico en estudiantes universitarios de enfermería. *NURE investigación: Revista Científica de enfermería*, *126*, 3.

Wamsler, C., & Restoy, F. (2020). Emotional Intelligence and the Sustainable Development Goals: Supporting Peaceful, Just, and Inclusive Societies. In *Peace, Justice and Strong Institutions* (pp. 1–11). Springer, Cham. https://doi.org/10.1007/978-3-319-71066-2_123-1

Wolf, B. M., & Fisher, C. L. (2022). Stress, Appraisal, and Coping Theory. In *The International Encyclopedia of Health Communication* (pp. 1–6). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781119678816.iehc0669

Xiong, Y., & Abd.Rahim, N. (2024). Understanding Psychological Stress in College Student: A Qualitative Case Study of Xinyang Agricultural and Forestry University. *International Journal of Academic Research in Progressive Education and Development*, *13*(4), 2705–2727.

Yundong, W., Lin, R., Kong, W., & Xi, X. (2024). Between Comfort and Challenge: The Role of Social Support in Shaping College Students' Happiness and Stress. *Journal of Educational Theory and Practice*, *1*(4), Article 4. https://doi.org/10.62177/jetp.v1i4.93

Zhang, J., Peng, C., & Chen, C. (2024). Mental health and academic performance of college students: Knowledge in the field of mental health, self-control, and learning in college. *Acta Psychologica*, *248*, 104351. https://doi.org/10.1016/j.actpsy.2024.104351