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IDENTIFICATION OF UNIVERSITY  
STUDENTS AT RISK DUE TO GENDER  
USING THE KOSTICK TEST

IDENTIFICACIÓN DE ESTUDIANTES  
UNIVERSITARIOS EN RIESGO POR GÉNERO  
MEDIANTE LA PRUEBA KOSTICK



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## IDENTIFICATION OF UNIVERSITY STUDENTS AT RISK DUE TO GENDER USING THE KOSTICK TEST

### IDENTIFICACIÓN DE ESTUDIANTES UNIVERSITARIOS EN RIESGO POR GÉNERO MEDIANTE LA PRUEBA KOSTICK

#### ABSTRACT

The aim of this research was to identify and analyze the characteristics and needs of incoming university students, in order to address them and facilitate their academic performance. To this end, Kostick test was administered to 1,922 students. A quantitative analysis was conducted, highlighting the leadership competency (5.61), indicating a strength to be considered in any academic activity inside and outside the classroom. They advocate for intense academic activities (6.41) in terms of physical and mental effort. They recognize that they need to improve their lifestyle (diet, exercise, rest, time management, habits). Achievement has ceased to be their primary motivator, with the lowest score (4.05). The study provides valuable information for university administrators, faculty, and student support services to develop specific interventions and programs that support students' comprehensive development and improve their chances of success in higher education.

**Keywords:** competence, aptitude test, higher education, teaching, quantitative analysis

#### RESUMEN

El objetivo de esta investigación fue identificar y analizar las características y las necesidades de los estudiantes de nuevo ingreso a la universidad, con el fin de abordarlas y facilitar su desempeño académico. Para ello se aplicó la prueba Kostick a 1,922 estudiantes. Se realizó un análisis cuantitativo; sobresale la competencia de liderazgo (5.61), indicando una fortaleza a considerar en cualquier actividad académica dentro y fuera del aula. Se pronuncian por actividades académicas intensas (6.41) en esfuerzo físico y mental. Reconocen que deben mejorar su modo de vida (alimentación, ejercicio, descanso, organización del tiempo, hábitos). Los logros han dejado de ser su principal motivante con la puntuación más baja (4.05). El estudio proporcionó información valiosa para que los administradores universitarios, profesores y servicios de apoyo a los estudiantes desarrollen intervenciones y programas específicos que apoyen el desarrollo integral de los estudiantes y mejoren sus posibilidades de éxito en la educación superior.

**Palabras clave:** competencia, prueba de aptitud, educación superior, enseñanza, análisis cuantitativo

## 1. INTRODUCTION

The ability to accurately predict students' academic performance in the classroom is crucial to the long-term sustainability of institutions of higher education (HEIs). Current approaches to identifying at-risk students often rely on an analysis of their past academic performance, but other factors could provide a more complete picture (Soobramoney & Singh, 2019). Identifying students with academic difficulties early on allows for the implementation of proactive intervention strategies, thereby increasing students' chances of success (Tamhane et al., 2014).

The transition to college can be a significant challenge for many students as they navigate a new academic environment, social dynamics, and greater personal responsibilities (Martin et al., 2003). Understanding the factors that contribute to improving classroom performance, personal adjustment, and students' overall well-being during this critical period is essential to supporting their success. Previous research has highlighted the importance of academic self-efficacy and motivation as key predictors of students' academic performance and their adjustment to university life (Malkoç & Mutlu, 2018).

Students who possess a strong sense of academic self-efficacy—or a belief in their ability to succeed—tend to be more persistent and resilient and achieve better academic results. Furthermore, students' goal orientation—whether focused on mastery and learning (task-oriented) or on performance management—can significantly influence their academic behaviors and coping strategies. (Chemers et al., 2001). Although these factors have been studied, there is a need for a more holistic understanding of how students' self-perception, personal preferences, and general orientation contribute to their academic and personal success in college.

The challenge of identifying college students at risk of academic or personal difficulties is a pressing concern for educational institutions around the world. A promising approach to this problem is the Kostick Test, a psychometric assessment tool designed to evaluate an individual's cognitive and emotional tendencies. This test is a comprehensive assessment that analyzes an individual's personality traits, cognitive abilities, and emotional intelligence. By analyzing a student's performance on the Kostick Test, educators can gain valuable insights into their potential for academic success and identify those who may require additional support or intervention.

Mayer and Salovey (1997) They highlighted the potential of the Kostick Test to identify college students at risk of academic difficulties or personal problems. They demonstrated that the Kostick test can identify students with low academic self-efficacy, poor emotional intelligence skills, and maladaptive coping strategies (behaviors or thoughts that people use to manage stress or difficult situations, but which may actually worsen the situation in the long term). This is associated with a higher likelihood of academic difficulties and potential school dropout.

Tross et al. (2000) They examined the relationship between the Big Five personality traits and academic performance in the early years of schooling. The first is *openness to experience*, as it reflects the degree of

intellectual curiosity, creativity, and willingness to explore new ideas and experiences. This trait is associated with a greater interest in learning and adaptability. On the other hand, *conscientiousness* involves self-discipline, organization, and the ability to fulfill obligations. Students with high levels of conscientiousness tend to perform better academically. The third trait is *extraversion*, as it is associated with energy and a tendency to seek the company of others. Although its relationship with academic performance is complex, it can influence participation in group activities and teamwork. The fourth trait is *agreeableness*. This trait includes characteristics such as empathy, cooperation, and consideration for others. It can affect social dynamics and collaboration in academic settings. Finally, *neuroticism* relates to emotional stability and the tendency to experience negative emotions such as anxiety, sadness, and stress. A high level of neuroticism is often associated with lower academic performance due to difficulty managing stress.

Kuo et al. (2024) They presented a protocol for using the Kostick test to identify college students at risk of academic difficulties. Their findings had significant implications for professors and academic advisors, as they provide valuable information for proactively supporting students and improving retention and graduation rates. The objective of this research was to identify and analyze the characteristics and needs of incoming students, as well as to explore gender differences in these characteristics, in order to generate information for the design of supports that facilitate their academic performance. The study began with the questions: What needs and competencies should the university address to facilitate the academic performance of incoming students? And who is better equipped for university work: women or men?

Based on a review of the literature (Chemers et al., 2001; Tross et al., 2000), the following hypotheses were proposed:

- New students exhibit varying levels of self-perceived competencies, with lower scores in areas related to self-regulation and organization.
- There are significant gender differences in the competencies assessed by the Kostick test, with women expected to score higher on dimensions related to responsibility and work adaptation.

These hypotheses were tested using descriptive analysis and logistic regression models. Investigating the role of students' personal preferences—such as their learning styles, interests, and values—in shaping their academic and social experiences at university is essential for proposing effective support policies. This will enable the development of a comprehensive model that explains how students' self-perception and personal preferences interact to predict their behavior and outcomes during their university studies.

### **1.1. Literature Review**

The pursuit of academic excellence is a fundamental goal for universities around the world. However, student burnout and poor academic performance continue to pose a significant challenge for institutions of higher education (Merante, 1983; Tamhane et al., 2014). In this regard, the Kostick Test is a vital tool, as it assesses 20 needs grouped into seven dimensions covering energy, leadership, lifestyle, social nature, work adaptation, emotional nature, and subordination. This made it possible to identify the competencies that students possess.

To address this issue, researchers and educators have explored various tools and strategies to identify and support students who may be at risk of academic difficulties (Alwarthan et al., 2022; Guha et al., 2018). One such tool that has been gaining increasing attention is the Kostick Test, a comprehensive assessment that evaluates an individual's cognitive abilities, personality traits, and academic potential (Credé & Kuncel, 2008; Mansfield et al., 2004). Administering the assessment at the start of a student's college career and providing follow-up support programs can help increase retention rates and improve academic performance, leading to a better understanding of their strengths, weaknesses, and potential for success (Alwarthan et al., 2022).

Previous research has demonstrated the potential of the Kostick test to predict student retention and academic performance (Aguiar et al., 2014; Matz et al., 2023). By incorporating the insights provided by the assessment, this information can be used to identify students at risk of academic difficulties and provide them with the necessary support through specific strategies to help them succeed (Alwarthan et al., 2022; Caviglia-Harris & Maier, 2020; Tamhane et al., 2014).

For example, students who score low in areas such as verbal reasoning, self-discipline, or emotional intelligence may be identified as at risk and in need of additional support. By understanding each student's specific strengths and weaknesses, as revealed by the Kostick test, universities can tailor their support services and academic interventions to meet each student's unique needs (Credé & Kuncel, 2008; Mccausland & Stewart, 1974). According to Credé and Kuncel (2008), taking into account non-cognitive factors (characteristics and skills that are not directly related to intellectual knowledge or cognitive ability, but that influence a student's behavior, performance, and well-being)—such as those assessed by the test—in the admissions process can help mitigate the adverse impact often observed when relying solely on cognitive measures.

This helps us understand why, in certain cases, students who passed the Academic Aptitude Test (PAA) and were admitted to college end up failing or even dropping out. In our case study, the PAA administered to students upon admission to the University of Guadalajara (UDG) in Mexico serves several purposes: it measures applicants' academic skills, including verbal and mathematical reasoning and comprehension skills. It serves as a criterion for admitting students to higher education programs, helping to identify those with the greatest potential for academic success. Additionally, it provides information on students' strengths and weaknesses, which can be useful for vocational and academic counseling. It contributes to establishing quality standards in higher education by ensuring that students entering the UDG meet certain aptitude requirements.

As a result, it is an essential tool for evaluating and selecting incoming college students. However, some incoming students do not meet the academic requirements for college (Roque Rodríguez (2024). Authors such as Matz et al. (2023); and Soobramoney and Singh (2019) Researchers have identified several factors related to student behavior that can even predict retention and academic performance, linked to demographic and socioeconomic characteristics as well as the level of social engagement with the institution.

For its part, Glandorf et al. (2024) They noted that a wide range of data—including academic and sociodemographic factors—can be used to accurately identify at-risk students. Among these, pre-enrollment characteristics that predict academic performance stand out. One theory that helps us understand what happens to students in relation to their classroom performance is social cognitive theory, which some authors such as Chemers et al. (2001), emphasize the role of self-efficacy beliefs in shaping motivation, learning, and academic achievement. Social cognitive theory emphasizes the role of social and cognitive factors in the acquisition and maintenance of behaviors (Oussedik et al., 2017).

The Kostick Test is a projective assessment tool designed to measure an individual's level of responsibility, a construct closely related to self-regulation, a key component of social cognitive theory. The Kostick Test is based on the premise that individuals' responses to ambiguous stimuli can reveal their personality traits and underlying cognitive processes (Masia & Chase, 1997). Bandura's social cognitive theory suggests that these cognitive processes are not isolated, but are influenced by social and environmental factors (Smith, 2021).

This study explored the possible connection between the Kostick test and social cognitive theory, particularly in the context of self-regulation and self-efficacy. The capacity for self-responsibility, as measured by this instrument, may be an important factor in an individual's ability to self-regulate and maintain desired behaviors. Integrating this theoretical perspective provides insight into how students' self-perceptions interact to influence their academic and personal success in college.

## 2. METHOD OF RESEARCH

This study was based on the use of the Kostick test (AFB Compucenter, 2021), used to identify and measure self-perception and personal preferences in the workplace; very useful for predicting an individual's behavior in their professional life. In our case, we use it to predict student performance during their time at the university. The Kostick Test is a psychometric assessment tool designed to measure an individual's cognitive abilities, specifically their problem-solving skills, logical reasoning, and abstract thinking. The instrument has garnered significant attention in the academic community due to its ability to provide valuable information about an individual's cognitive aptitude.

Several studies have examined the effectiveness and applications of the Kostick test. For example, Franestian et al. (2020) found that the Kostick test could effectively assess various aspects of problem-solving, such as identifying the problem, linking cause and effect, planning solutions, determining relevant solutions, and analyzing the impact of solutions. Furthermore, according to Soobramoney and Singh (2019) The Kostick test allows for the integration of higher-order thinking skills, including problem-solving skills. In school curricula, it has become increasingly important to prepare students to face the complex challenges of the modern world. It has been noted that while these types of tests assess cognitive skills, they do not do so comprehensively.

This study employed a quantitative research design, utilizing descriptive, cross-sectional, exploratory, and correlational analysis. It is a non-experimental study, as the variables were not manipulated, and data were collected at a single point in time. The exploratory approach allowed for the identification of patterns in students' competencies, while the correlational analysis examined the associations between the assessed variables and gender. It is important to note that the study was conducted using a *Google* form, which was sent to all incoming students in the 14 degree programs for the 2024-A academic year at the University Center for Economic and Administrative Sciences (CUCEA, according to its Spanish acronym) of the UDG. The survey was completed by 1,922 new students out of a total of 3,127 (61.46%). (Universidad de Guadalajara, 2024).

The sample consisted of 1,038 women and 886 men. In addition, it was verified that the distribution by academic program was representative of the total number of incoming students (Table 1). Control questions were included to verify consistency in the responses, and cases with invalid response patterns were excluded. The study was conducted in accordance with ethical principles. All participants provided their informed consent online before completing the questionnaire. The confidentiality of responses was guaranteed, and data were anonymized using a numerical code. Although the Kostick test was originally designed for the workplace, previous studies (Alwarthan et al., 2022; Caviglia-Harris & Maier, 2020) have explored its use in educational contexts to assess competencies transferable to academic performance. Furthermore, this study was conducted for exploratory purposes, acknowledging its limitations.

**Table 1**  
*Students surveyed*

Academic Program	Female	Male	Total
Public Accounting	154	184	338
International Business	181	135	316
Administration	167	114	281
Marketing	138	98	236
Financial Management and Systems	80	127	207
Tourism	76	33	109
Human Resources	74	26	100
Business Engineering	30	50	80
Food Service Management	49	27	76
Public Relations and Communication	54	14	68
Information systems	7	34	41
Economy	9	25	34
Government Administration and Public Policy	14	13	27
Environmental Management and Economics	5	4	9
<b>Total</b>	<b>1,038</b>	<b>886</b>	<b>1,922</b>

The Kostick test consists of 90 questions with two answer choices, in which the individual marks 1 next to the option they most identify with; it assesses 20 needs grouped into seven characteristics (Table 2).

**Table 2**  
*Items evaluated*

Feature	Student needs
I. Power Level	1. Need to complete an activity or a task
	2. Intense exercise in the execution of the task
	3. Need for achievement
II. Leadership	4. Leader activity
	5. Need to control others
	6. Ease of decision making (impulse)

III. Modus vivendi	7. Always active
	8. Vigorous
IV. Social nature	9. Claim to be notified
	10. To be sociable
	11. Need for group belonging
	12. Need for affection (affinity)
V. Adaptability at Work	13. Theorist or thinker
	14. Interest in details (individually or personally)
	15. Organization (systematic and structured)
VI. Emotionally	16. Need for change (need to change or not to change)
	17. Rigid, emotional mind (emotionally introverted)
	18. Aggressiveness/passivity/ defensive state
VII. Subordination	19. Need for supervision and support (to grant authority)
	20. Need rules and supervision

To supplement the analysis, an econometric model with specific characteristics was used (Table 3). Each variable indicated whether the student selected the option corresponding to that need on the Kostick test.

$Y = 1$  ó  $P_i$ , probabilidad de asociación con las estudiantes mujeres.

$Y = 0$  ó  $(1 - P_i)$ , probabilidad de no asociación.

$$Y_{logit} = \beta_0 + \beta_1 v1 + \beta_2 v2 + \beta_3 v3 + \beta_4 v4 + \beta_5 v5 + \beta_6 v6 + \beta_7 v7 + \beta_8 v8 + \beta_9 v9 + \beta_{10} v10 + \beta_{11} v11 + \beta_{12} v12 + \beta_{13} v13 + \beta_{14} v14 + \beta_{15} v15 + \beta_{16} v16 + \beta_{17} v17 + \beta_{18} v18 + \beta_{19} v19 + \beta_{20} v20$$

**Table 3**

*Operationalization of the variables*

Variable	Description	Values
Woman (dependent)	If the student is a woman	1=yes 0=no
v1	Intense exercise in the execution of the task	1=yes 0=no
v2	Leadership activity	1=yes 0=no
v3	Ease of decision-making	1=yes 0=no

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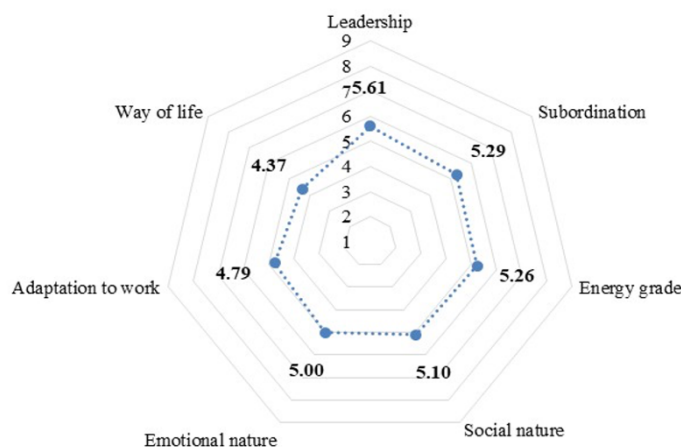
v4	Always active	1=yes 0=no
v5	Vigorous	1=yes 0=no
v6	To be sociable	1=yes 0=no
v7	Theorist or thinker	1=yes 0=no
v8	Interest in details	1=yes 0=no
v9	Organization (systematic and structured)	1=yes 0=no
v10	Need for change	1=yes 0=no
v11	Need to finish a task	1=yes 0=no
v12	Need for achievement	1=yes 0=no
v13	Need to control others	1=yes 0=no
v14	Claim to be notified	1=yes 0=no
v15	Need for group belonging	1=yes 0=no
v16	Need for affection	1=yes 0=no
v17	Rigid, emotional mind (emotionally introverted)	1=yes 0=no
v18	Aggressiveness/passivity/ defensive state	1=yes 0=no
v19	19. Need for supervision and support	1=yes 0=no
v20	20. Need rules and supervision	1=yes 0=no

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### 3. RESULTS

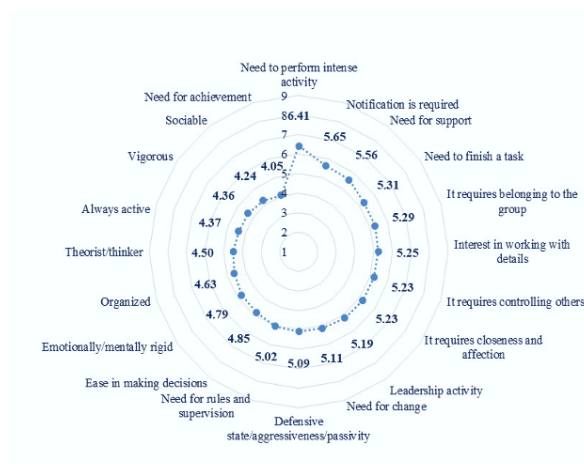
Given that the maximum score possible is nine, it was possible to identify the students' characteristics (Figure 1). It was found that *Leadership* received the highest score (5.61). As the most prominent competency, this reflects students' perception of their ability to guide others. This can be leveraged through activities that allow students to develop this skill. Conversely, *Lifestyle* (4.37), even though the score indicates a balance, shows that students seek satisfaction and well-being in their daily activities, referring to improving their diet, exercise, rest, time management, and habits.

**Figure 1**  
*Student characteristics*



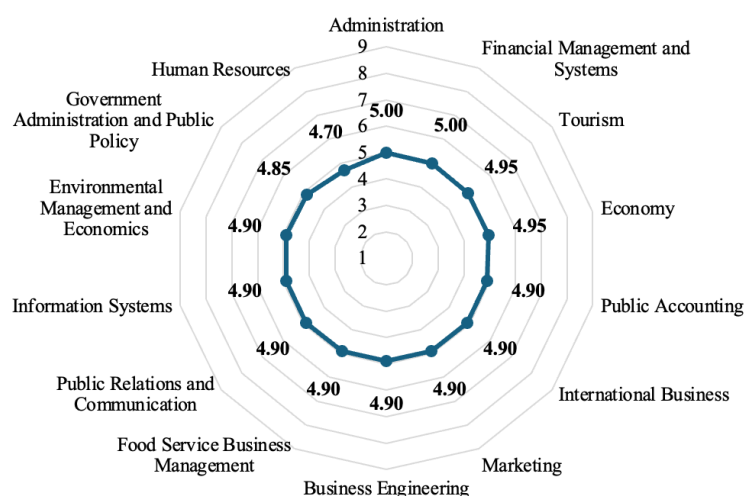
With regard to students' needs, it was observed that the *Need to engage in intense activity* (6.41) received the highest score (Figure 2). In other words, this refers to the willingness to engage in activities that require a high level of energy, effort, and commitment. This need may manifest itself in the search for challenging tasks, a preference for dynamic environments, and a tendency to take on roles that involve action and participation. On the other hand, regarding the need for achievement (4.05), a certain fear of failure can be interpreted. That is, students need to be motivated to drive them to achieve their goals, overcome challenges, and gain recognition for their accomplishments.

**Figure 2**  
*Student needs*



Subsequently, the scores for the 20 needs were averaged to obtain the indicator for each major (Figure 3). It was observed that the programs with the highest scores were Business Administration, Financial Management, and Information Systems. Programs with scores below 5 indicated that students needed greater personal development, had low self-confidence, struggled to adapt to changing environments, were dissatisfied with their work-life balance, and had difficulty communicating effectively.

**Figure 3**  
*Student needs by program*



In summary, students prefer tasks that require effort to complete, as they have confidence in themselves as leaders and enjoy taking the lead. Furthermore, they are good at making decisions and approach their activities with the same level of warmth and speed; they are responsible when it comes to deadlines and possess a moderate level of physical vigor (energy and vitality). In terms of communication, 50% of students need to improve their communication skills. On the other hand, participants prefer to plan and formulate strategies 40 to 50% of the time; they have a good ability to notice and identify details and work with them, are somewhat disorganized, and are receptive to change and do not have much trouble adjusting to it.

They may also delegate tasks, yet keep a large number of them for themselves; they feel the need to finish a task once they start it and take an interest in people, sometimes managing them through the image of *the protector*. They enjoy receiving attention from others and being noticed; they like participating in groups and can be influenced by group opinions. In this sense, they interact warmly with others, are not very involved in their work, and tend to be reserved. It was also noted that they have difficulty dealing with authority, as they like to follow rules and obtain *the official word*.

To answer the question about the differences between men and women, a logistic regression model was fitted (Table 4).

**Table 4**  
*Econometric models*

Variable	Model 1					Model 2 adjusted				
	B	Standard error	Wald	Sig.	Exp(B)	B	Standard error	Wald	Sig.	Exp(B)
v1	0.145	0.040	12.959	0.000	1.157	0.152	0.040	14.618	0.000	1.164
v2	0.046	0.043	1.123	0.289	1.047					
v3	0.001	0.040	0.001	0.971	1.001					
v4	-0.092	0.036	6.639	0.010	0.912	-0.097	0.034	8.241	0.004	0.908
v5	-0.073	0.042	3.072	0.080	0.930					
v6	0.075	0.038	3.853	0.050	1.078	0.075	0.036	4.311	0.038	1.078
v7	0.299	0.043	47.479	0.000	1.349	0.300	0.043	48.324	0.000	1.349
v8	0.173	0.039	19.317	0.000	1.189	0.171	0.039	19.817	0.000	1.187
v9	0.092	0.038	5.789	0.016	1.097	0.090	0.038	5.761	0.016	1.094
v10	-0.233	0.039	36.219	0.000	0.792	-0.240	0.038	39.588	0.000	0.787
v11	0.085	0.039	4.751	0.029	1.089					
v12	-0.066	0.041	2.632	0.105	0.936					
v13	-0.041	0.041	1.019	0.313	0.960					
v14	0.325	0.038	74.726	0.000	1.385	0.321	0.036	80.303	0.000	1.378
v15	0.207	0.039	28.149	0.000	1.230	0.213	0.037	33.449	0.000	1.238
v16	0.011	0.040	0.069	0.792	1.011					
v17	-0.243	0.042	33.691	0.000	0.784	-0.237	0.040	35.793	0.000	0.789
v18	-0.036	0.038	0.899	0.343	0.965					
v19	-0.073	0.041	3.254	0.071	0.929					
v20	0.048	0.037	1.685	0.194	1.050					
Constant	-3.491	0.606	33.150	0.000	0.030	-3.888	0.504	59.410	0.000	0.020

In the first model, the variables *v2*, *v3*, *v5*, *v11*, *v12*, *v13*, *v16*, *v18*, *v19*, and *v20* were found to be insignificant. This indicated that they were not associated with the probability that a student was female. As a result, these variables were removed from the model, yielding the second adjusted model, in which the significant variables were: *v1*, *v4*, *v6*, *v7*, *v8*, *v9*, *v10*, *v14*, *v15*, and *v17*.

If the student demonstrated the ability to engage in intense activities, the probability that they are female increased by 16%. Furthermore, if they are sociable, that probability increased by 7%. If they are characterized as theoretical and thoughtful, the increase was 34%. If they have an interest in performing work with attention to detail, the probability rose by 18%. If they are organized, it increased by 9%. On the other hand, if they need to be reminded, the probability rose by 37%. If they seek to belong to a group, it increased by 23%. Furthermore, if the student has contagious energy, their probability decreased by 10%. If they show a need for change, the reduction was 22%. And if they have a rigid mindset, it also decreased by 22%.

In total, 1,922 cases were recorded, of which 67.8% were correctly classified. The Nagelkerke  $R^2$  value was 0.214, indicating that the independent variables explained 21.4% of the dependent variable (being female). Furthermore, the Hosmer-Lemeshow test was accepted, with a p-value of 0.779. It should be noted that the logistic regression model presented used gender as the dependent variable for the purpose of exploring differential competency profiles between men and women. This does not, in itself, constitute a direct prediction of academic risk.

## 4. DISCUSSION

A strength of this study was the sample size achieved ( $N=1,922$ ), as it represented 61.46% of the incoming student population, with a detailed breakdown by academic program and gender, which allowed for differentiated analyses. The use of the Kostick test as a predictor of academic performance and an instrument for early risk identification in higher education students is rarely addressed in the literature. However, there are some studies that address psychosocial factors (social support, self-efficacy, motivation) and their relationship to student retention, including Rubio-Tobar (2025) with which we agree.

Studies such as the one by Jaramillo Flores (2024) have noted that study habits and group participation are correlated with academic success. Our findings suggest that the Kostick Test, with its ability to assess a wide range of cognitive and emotional factors, is a valuable tool for identifying college students at risk of academic or personal difficulties. By identifying these students early on, universities can implement targeted interventions and support programs to help them succeed and, ultimately, improve student retention and overall well-being.

On the other hand, the findings showed that women possess greater academic competencies in university classrooms than men, highlighting the need for a more nuanced understanding of gender differences in academic

competencies and the importance of using assessment tools that are sensitive to these differences. The findings suggest that universities should adopt a more personalized approach to academic support that takes into account the unique strengths and needs of each student.

The findings of social cognitive theory were confirmed. Students who are capable of self-regulation and have clearly defined goals regarding the skills they wish to acquire tend to be more effective in improving their academic performance. A significant limitation we acknowledge in this study was the use of the Kostick test without prior validation in the university educational context. Therefore, future studies should conduct a standardization process and construct validity analysis on student samples to confirm its relevance in this educational setting.

## 5. CONCLUSIONS

Descriptive analyses revealed scores above the midpoint of the scale in dimensions such as *Leadership* (5.61) and *Willingness to Engage in Intense Activities* (6.41). However, it should be noted that this finding was based on descriptive comparisons without rigorous inferential testing. Therefore, rejecting or accepting the hypothesis is preliminary and requires confirmation through statistical tests that allow the results to be generalized to the population of incoming students.

While the descriptive findings suggest certain trends in students' self-perceptions—such as their willingness to take on leadership roles and engage in demanding activities—the study's methodological limitations prevent us from drawing conclusive recommendations for teaching or institutional practice. However, the results can be viewed as exploratory input for institutional reflection, rather than as sufficient evidence to redesign pedagogical strategies. Therefore, future research should:

- Validate the Kostick test in a student population using factor analysis and reliability studies;
- Incorporate objective measures of academic performance as a criterion;
- Use appropriate statistical methods, such as network models; and,
- Design longitudinal studies that enable the identification of predictive relationships between self-perceived competencies and academic success.

The question “What competencies do teachers need to perform their teaching duties?” was not answered and remains open for future research. Therefore, the test still needs to be administered to teachers in order to compare the results.

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