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Articles

Academic adjustment among transnational or United States-born university students on Mexico's Northwest border

Ajuste académico entre estudiantes universitarios transnacionales o nacidos en Estados Unidos en la frontera noroeste de México

Alfredo Valadez-García[a]* https://orcid.org/0000-0002-2841-4972
Eunice D. Vargas-Valle[b] https://orcid.org/0000-0002-6980-3077
Javier Samaniego-Ojeda†[a] https://orcid.org/0000-0002-1677-8699
Francisco Antonio Maldonado-Torres[a] https://orcid.org/0000-0001-8790-9345

[a] Cetys Universidad, Campus Tijuana, Tijuana, Mexico, e-mail: alfredo.valadez@cetys.mx, francisco.maldonado@cetys.mx
[b] El Colegio de la Frontera Norte, Tijuana, Mexico, e-mail: eunice@colef.mx

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* Corresponding author: Alfredo Valadez-García. E-mail: alfredo.valadez@cetys.mx

† Deceased prior to the publication of this article.

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Abstract

Limited research exists on the academic adjustment to Mexican universities of undergraduate students who were born in or have residency experience in the United States, despite their recent surge in enrollment. This article examines the academic adjustment of these students at a border private university, from February 2023 to May 2024. Quantitative methodology is employed, utilizing inferential statistical analysis of a survey conducted among university students. Students born in the United States were more likely to achieve higher levels of personal-emotional adjustment than those born in Mexico. Students who resided in the United States for five years or more were less likely to achieve higher levels of socio-academic adjustment compared to those who lacked transnational experience. While greater acculturation in English was a protective factor for socio-academic adjustment, lower acculturation in Spanish and higher intercultural challenges were risk factors, with possible implications for educational performance and achievement.

Keywords: academic adjustment, higher education, migration, acculturation, interculturality.

Resumen

Se conoce poco sobre cómo los estudiantes universitarios nacidos o con experiencia de residencia en Estados Unidos se adaptan a la vida académica en las universidades mexicanas, a pesar de su reciente incremento. Este artículo analiza el ajuste académico de estos estudiantes en una universidad privada

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fronteriza de febrero de 2023 a mayo de 2024. Se emplea una metodología cuantitativa que consiste en el análisis estadístico inferencial de una encuesta realizada a estudiantes universitarios. Los nacidos en Estados Unidos presentaron mayor probabilidad de ajuste personal-emocional que los nacidos en México. Aquellos que residieron cinco años o más en Estados Unidos mostraron menor probabilidad de ajuste socioacadémico que aquellos sin experiencia transnacional. Mientras que una mayor aculturación al inglés fue un factor protector del ajuste socioacadémico, una menor aculturación al español y un mayor desafío intercultural fueron factores de riesgo, con posibles implicaciones en el desempeño y logro educativo.

Palabras clave: ajuste académico, educación superior, migración, aculturación, interculturalidad.

Introduction

Higher education poses a challenge for any student, as it requires a different approach compared to basic education: "students are expected to be able to independently meet daily demands, exhibit more disciplined academic behavior, and fulfill the educational objectives of their discipline" (Domínguez-Lara et al., 2021, p. 336). As such, studying at the university level requires academic adjustment, defined as students' ability to successfully manage the various demands of higher education in academic, social, institutional, personal and emotional aspects (Baker & Siryk, 1984; Credé & Niehorster, 2012; Díaz-Mujica et al., 2018).

Research shows that migrant students face significant challenges when transitioning from one educational system to another due to the many discontinuities they experience: curricular, linguistic, emotional, pedagogical and socioeconomic (Zúñiga et al., 2008, p. 16). Some of these challenges are related to sociocultural adaptation, such as learning a new language, studying subjects specific to the Mexican context, building relationships with teachers and peers, and developing a sense of cultural identity—all within a school culture that emphasizes nationalism and monocultural assimilation (Despagne & Jacobo Suárez, 2016; Vargas Valle, 2022, 2025). This situation can lead to academic setbacks (Cortez Román et al., 2015; Nava Nava et al., 2017; Vargas Valle, 2022) or even increase stress levels by amplifying the perception of cultural distance among young people who migrated from the United States (Navarro-Hernández et al., 2023), which might affect academic adjustment (Zhou et al., 2008).

The academic adjustment of young migrants in Mexico—most of whom were born in the United States—depends on their migration trajectories, academic backgrounds, socioeconomic and cultural profiles, personal motivations and the social and academic support they receive from educational institutions (Jiménez Díaz & Montoya Zavala, 2022; Vargas-Valle & Aguilar-Zepeda, 2020). In this regard, the objective of this study is to analyze the academic adjustment of college students with ties to the United States—whether by birth or a history of residence in that country—compared with students without these characteristics at a private higher education institution on Mexico's northwestern border. This region is one of the main areas receiving migrants returning from the United States (Bautista León & Giorguli Saucedo, 2022), as its proximity to the United States allows them to maintain frequent and close transnational and

cross-border ties. Furthermore, it is an area where a high number of cross-border births have been recorded (Vargas-Valle et al., 2024), resulting in a significant presence of young people born in the United States or of U.S. origin.

For this project, students enrolled at the two border campuses of a private institution of higher education located in northwestern Mexico—in Tijuana and Mexicali, Baja California—were analyzed. This university values students' bilingual language skills in its undergraduate and graduate programs and offers global certification or dual degrees, which are attractive to young people from the United States. Moreover, it offers a comparative economic advantage to students with this profile, given the high costs of higher education in the United States.[1]

This study employed a quantitative methodology, including inferential statistical analysis of a convenience-sample survey administered to college students. The survey included the Student Adaptation to College Questionnaire (SACQ), developed by Baker and Siryk (1984, 1999). This instrument is known for capturing early signs of college adjustment problems and for its predictive power regarding retention and academic achievement (Cassaretto et al., 2024; Díaz-Mujica et al., 2018; Domínguez-Lara et al., 2021; Gravini Donado et al., 2021; Páramo Fernández et al., 2017). Additionally, its dimensional specification was considered conducive to exploring its application among migrant students with varying degrees of acculturation. Approximately one-quarter of the students in the sample had lived in the United States at some point in their lives and thus had experience with the U.S. school system, and one-third were born in the United States. Understanding their academic adjustment is essential for addressing the specific needs and challenges migrants face in educational environments that differ from those of their countries of origin.

The working hypothesis was that the longer the length of residence in the United States, the greater the academic adjustment difficulties would be, based on the assumption that students would have had more time to socialize in the United States. This hypothesis is grounded in previous findings on the linguistic and identity-related challenges faced by transnational students (Despagne & Jacobo Suárez, 2019; Nava Nava et al., 2017) and the reduced engagement or poor academic performance that may result from these challenges (Jiménez Díaz & Montoya Zavala, 2022; Navarro-Hernández et al., 2023; Vargas-Valle & Aguilar-Zepeda, 2020).

Transnational students have been defined as those who have moved between the U.S. and Mexican educational systems, regardless of their place of birth (Zúñiga et al., 2008). The motivations and level of preparation for returning to Mexico among students residing in the United States are unknown. Nonetheless, given that they attend a private university, it is assumed that this population has been able to mobilize socioeconomic resources—possibly accumulated during their time abroad—to facilitate their adaptation in Mexico (Cassarino, 2004).

Another hypothesis considered was that U.S. citizenship might serve as a protective factor for academic adjustment, since it can be viewed as a form of capital (Bauder, 2008) that enables students to expand their cross-border socioeconomic opportunities (Orraca Romano, 2023) and improve their psychosocial well-being (Bojórquez et al., 2025). Additionally, other independent variables linked to students' ties to the United

[1] Tuition for the dual-degree program costs approximately 14 000 U.S. dollars (USD) at the U.S. university affiliated with the program, plus tuition of more than 50 000 USD, spread out over four years. These figures combined are much lower than the total cost for nonresidents at public universities in California.

States were included, such as linguistic acculturation (to English or Spanish) and the intercultural challenge posed by daily interactions with people from other cultures (Cuellar et al., 1995). It was assumed that academic adjustment to university life would be greater when the intercultural challenge was lower, English-language acculturation was lower, and Spanish-language acculturation was higher.

This paper is divided into four consecutive sections: the first covers the theoretical aspects and their main proponents regarding key ideas for the research: academic adjustment and the role of acculturation in the academic adaptation of transnational students. The second section describes the methodology, detailing the sample, data sources, and the construction of the dependent and independent variables, as well as the econometric technique used to analyze them. The third section presents the descriptive results and those obtained from the regression models. Finally, the fourth part of the study presents the main conclusions and discusses the findings.

Academic adjustment: key concepts and empirical evidence

Adjusting to college life involves developing the ability to adapt to the challenges that arise in various areas (Credé & Niehorster, 2012; Reyes-González & Meneses-Báez, 2024). According to Baker and Siryk (1984), academic adjustment can be grouped into four dimensions: academic, social, personal-emotional and institutional. First, academic adjustment includes students' ability to cope with educational demands—for example, the motivation and effort required to complete academic obligations and satisfaction with the academic environment. Second, social adjustment refers to a student's success in interpersonal and social relationships related to college life. Third, personal and emotional adjustment refers to a student's psychological well-being—specifically, the extent to which students experience stress, anxiety or physical reactions to the demands of college life. Finally, the institutional dimension of academic adjustment includes student satisfaction with their chosen school and the college experience.

The transition from high school to college presents significant challenges for young people, including adapting to a new and more demanding academic environment, which requires a set of personal and social skills to facilitate a smoother adjustment (Credé & Niehorster, 2012; Reyes-González & Meneses-Báez, 2024; Van Rooij et al., 2018). Thus, academic adjustment is a dynamic process in which students must develop strategies to cope effectively with the challenges inherent in college life, such as course load, time management, performance pressure and the need to establish new social support networks (Páramo Fernández et al., 2017).

It has been documented that academic adjustment is also linked to a student's ability to regulate their behavior and emotions in response to the demands of the educational environment, which translates into greater commitment to academic activities, active participation in the university community and a resilient attitude toward stressful situations (Credé & Niehorster, 2012; Hazan Liran & Miller, 2019; Reyes-González & Meneses-Báez, 2024). Students who demonstrate better academic adjustment are better able to cope with family separation when it occurs and have stronger social skills for connecting with their peers and teachers (Caldera Montes et al., 2022; Mattanah et al., 2004). This adaptation process is essential for students'

overall well-being, which includes their mental health and the establishment of a successful academic trajectory in higher education (Castro Solano & Cosentino, 2019; Credé & Niehorster, 2012).

The challenges of adapting to university life can be exacerbated when migration is factored in, as students experience changes in their academic, cultural, social and family circumstances in a new geographic setting—changes that can cause stress and also affect their academic adjustment (Navarro-Hernández et al., 2023; Zhou et al., 2008). Some migrant students may lack sufficient socioeconomic resources, social ties and cultural or linguistic elements shared with the general student body, which further complicates their situation as they are forced to develop strategies for financial self-sufficiency and cultural adaptation in a new sociocultural environment (Cortez Román et al., 2015; Navarro-Hernández et al., 2023).

The acculturation of transnational students and their adjustment to school in Mexico

Acculturation refers to changes in individuals' behavior and attitudes that occur through contact between people from different cultural backgrounds, both at the individual and group levels (Berry, 1997). During childhood and adolescence, the two main settings in which acculturation occurs are the family and the school. Therefore, the characteristics of the school and family contexts influence migrants' acculturation, while academic adjustment is an expected outcome of this process (Makarova, 2019; Makarova et al., 2023).

Over the years, a vast body of literature has emerged on the sociocultural adaptation of migrants. For Mexican-American youth, the seminal works on acculturation by Cuellar et al. (1995) stand out. By validating and applying a measurement instrument, they identified how acculturation influences individuals across behavioral, affective and cognitive dimensions. The authors assert that changes occur not only in language, customs and cultural expressions, but also in how a person feels about their identity, beliefs, ideas, attitudes and core values.

The literature emphasizes that sociocultural adaptation is linked to the ability to engage with the host society in various ways and to emotional well-being (Makarova et al., 2023; Masgoret & Ward, 2006). Along these lines, it has been found that a migrant's cultural integration, rather than assimilation, leads to more positive outcomes in terms of psychological adaptation, as the migrant retains their cultural distinctiveness and adopts cultural aspects that enhance their social interaction in the host country (Berry, 1997; Sirlopú et al., 2018). For this to happen, it is important to have an inclusive environment, as migrants must adapt to new living conditions and experience stressors such as loss of status, marginalization, alienation and perceived discrimination, among others, which could put their mental health to the test (Bojórquez et al., 2025; Collazos et al., 2008).

In Mexico, transnational students face a range of administrative, bureaucratic, pedagogical and linguistic challenges that hinder their integration, engagement and academic performance in school. Several authors (Jacobo Suárez, 2022; Jiménez Díaz & Montoya Zavala, 2022; Ramírez Ramírez et al., 2023; Vargas-Valle & Aguilar-Zepeda, 2020; Zúñiga et al., 2008) note that these students enter schools under conditions that are not conducive to learning, as they face: limited socialization due to little or no knowledge of the Spanish language; unfamiliarity with the content of subjects such as history and geography; a lack of bilingual academic support materials; low interest and commitment from teachers; exclusionary and unequal treatment by their peers and teachers; and bullying due to cultural differences and, in particular, the way they speak Spanish.

The challenges become more complex when transnational students have spent a significant portion of their educational journey in the United States. According to Jacobo Suárez (2022), students who have lived their entire lives in the United States or who arrived there as children face greater challenges in integrating into the school system in Mexico, since, far from "returning home", they are migrating to an unfamiliar country where they face multiple sociocultural and academic challenges. In fact, it has been found that students who have spent a long time in the United States (six years or more) and have recently arrived in Mexico (less than three years) tend to show less enthusiasm for school, due to factors such as their limited Spanish proficiency, teachers' indifference to their need for academic support and a lack of cultural identification with Mexico, all of which affect their integration into school (Vargas-Valle & Aguilar-Zepeda, 2020).

Regarding language barriers, Despagne and Jacobo Suárez (2016) note that the Mexican educational system is based on an assimilationist cultural model, in which Spanish is often linked to the construct of a monocultural national identity—that of being Mexican—. It is important to mention that, although these students speak Spanish at home, their self-perceived proficiency in academic Spanish is low, whereas they have an advantage when preparing for English classes, since their oral proficiency in English gives them confidence and social recognition (Cortez Román et al., 2015; Nava Nava et al., 2017). Notwithstanding, Vargas Valle (2022) states that, while the English language benefits these students in English classes or in the context of bilingual schools, there are obstacles to utilizing this linguistic capital in Mexico, such as the fact that English is not taught by proficiency level, the lack of empathy and preparation among teachers to recognize their bilingualism and support their linguistic integration and language ideologies that devalue these skills.

In this regard, Christiansen et al. (2018) point out that in Mexico there is a perception that speaking English is linked to cultural superiority and that the "correct" way is to speak English (or Spanish) like a native speaker, thereby devaluing dynamic language practices. This linguistic purism may facilitate the integration of transnational students into certain academic programs by enhancing their social status in these contexts. Nonetheless, it can also label and segregate them socially and professionally because of their "non-native" use of Spanish. As a result, some transnational students try to go unnoticed and turn to trusted teachers or teach themselves to quickly erase any "non-native" traces from their Spanish, while others, for fear of losing their English and cultural affinity, socialize primarily with other migrants (Nava Nava et al., 2017).

Cortez et al. (2015) have shown that, despite the barriers to academic integration faced by college students who migrated from the United States to Mexico for educational reasons, these students resiliently develop a set of strategies to establish themselves in Mexico and leave behind the marginalized status they experienced in the United States due to a lack of documentation and exclusion from higher education systems. Among these strategies are: "a positive self-assessment of their language skills and cultural capital, and a rapid adaptation to the Mexican bureaucratic system, which allowed them to enroll in college and continue their pursuit of success" (p. 1204).

Concerning cultural identity, various studies confirm that most transnational students construct hybrid cultural identities shaped by their life experiences in Mexico and the United States, since, in addition to being bilingual, they are bicultural and maintain social ties in the United States (Despagne & Jacobo Suárez, 2016; Jiménez Díaz & Montoya Zavala, 2022; Landa Alemán & Villegas, 2023; Ramírez Ramírez et al., 2023; Vargas Valle, 2025; Zúñiga et al., 2008).

Nevertheless, assimilation into Mexican culture challenges hybrid identities, which may fade over time in Mexico (Vargas Valle, 2025). Cortez et al. (2015) also point out that these students lead dual lives and most feel more comfortable with Mexican culture, although some are unable to adjust to it and prefer American culture. In this regard, Nava Nava et al. (2017) highlight that—due to their education, the fact that they grew up in the United States, and their desire to return to that country—transnational students "try to uphold Mexican values, but these sometimes conflict with their previous life experiences" (p. 133), which illustrates the difficulties of navigating divergent cultural contexts.

Method

This study is based on a quantitative and explanatory research design. The source of information is the questionnaire titled "Academic and Working Conditions of the Cross-Border Population", which was conducted between February 2023 and May 2024 on the campuses of a private university in the cities of Tijuana and Mexicali, Mexico. These two campuses were chosen because they are located on the border and have students with prior educational experience in the United States. These two campuses account for more than 90% of the university's enrollment, and the university offers degree programs taught bilingually or in English.

The survey was conducted on a convenience basis. First, the researchers identified groups of students with a history of education in the United States (290 students). They visited the classrooms where these students were taking classes, resulting in a sample size of $n = 1\,156$. The study complied with ethical criteria for research involving human subjects. The students were informed about the research objectives and confidentiality measures, and those who provided informed consent completed the survey.

The questionnaire consisted of six sections: *a*) sociodemographic; *b*) educational; *c*) socio-emotional integration; *d*) acculturation; *e*) employment and migration; and, *f*) migration expectations. The distribution of the sample by semester was as follows: 4.5%, 6.3%, 12.4%, 34.7%, 7.0%, 8.0%, and 26.8% for the second to eighth semesters, respectively. All bachelor's degree programs at both campuses were included, resulting in a sample comprising 54% men, aged between 17 and 29 (M = 20.7, D. E. = 1.83), with 45.5% located in Tijuana and 55.5% in Mexicali.

For the data analysis, 1 137 cases with information on all variables of interest were used; that is, of a total of 1 156 questionnaires, 19 interviews had incomplete data and were therefore omitted from the analysis. Descriptive and inferential statistics were employed. First, the four-dimensional SACQ was used, as described in the conceptual section: academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment (Baker & Siryk, 1984, 1999). A short Spanish version was adapted (Rodríguez González et al., 2012), which has been validated for use among Latin American students (Cassaretto et al., 2024). The questionnaire consists of 50 items (see Table 1) and uses a seven-point Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (7). The original questionnaire had nine response options, but it was adapted to make it easier to complete on computers and other electronic devices. The questionnaire was found to have high reliability, with an overall Cronbach's alpha of 93.8.

Factor analysis was used to identify the underlying factors of academic adjustment as measured by the SACQ. The factor analysis of the survey results revealed only two primary factors that explained 76% of the combined variance among the items when *oblimin* oblique rotation was applied. Based on the items with the highest loadings on each factor, these factors corresponded to socio-academic adjustment (with high loadings on both academic and social adjustment) and personal-emotional adjustment. Finally, to visualize the results for factors 1 and 2, they were divided into quartiles: very low, low, medium or high.

The statistical analysis used frequencies and means to determine the sociodemographic profile of the students in the total sample by their levels of socio-academic and personal-emotional adjustment. In addition, the two factors, transformed into categorical ordinal distributions, were analyzed as dependent variables in ordinal logistic models. The model formula is presented below:

$$ln\left(\frac{P\,(Y\leq j)}{1-P\,(Y\leq j)}\right)=\alpha j-\beta 1X1-\beta 2X2-\ldots-\beta kXk$$

Where

$P\,(Y \leq j)$ is the cumulative probability that the response variable Y is less than or equal to category j.

j represents the categories of the dependent variable, with $j = 1, 2, \ldots, C-1$, where C is the total number of categories.

$ln\,(P\,(Y \leq j)\,/\,(1-P\,(Y \leq j)))$ is the logarithm of the cumulative odds (also known as the cumulative logit).

αj is the cutoff point or intercept for category j. There are $C-1$ intercepts, one for each boundary between categories.

βk are the regression coefficients for the predictor variables Xk. These coefficients are the same for all intercepts, reflecting the assumption of proportional odds.

Table 1. Student Adaptation to College Questionnaire (SACQ), adapted by the authors

Variable	Mean	D. E.
I know why I'm in college and what I want to get out of it	6.1	1.5
I'm happy with the pace at which I'm working	5.4	1.6
My academic goals and objectives are well defined	5.6	1.6
I don't think I'm capable of doing everything expected of me	5.2	2.1
It is very important to me to obtain a college degree	6.1	1.6
Lately, I haven't been feeling very motivated to study	4.0	2.1
Lately, I've been questioning the value of a college degree	5.0	2.1
Lately, I've been having trouble staying focused when I study	4.0	2.1
My grades aren't good, even though I'm trying hard	5.4	1.9
I'm attending classes regularly	6.0	1.6
I have a hard time getting started on my homework assignments	4.0	2.2
I am satisfied with the quality of the courses this semester	5.0	1.8
Most of the things that interest me have nothing to do with school	4.3	2.0
I'm very happy with the teachers I have this semester	5.2	1.8
I am very satisfied with my academic performance at the university	5.5	1.7
I think I fit in well at college	5.6	1.7
At college, I'm meeting people and making friends	5.8	1.7
I'm very involved in campus life	4.8	1.9
I'm adjusting well to college	5.7	1.7
I have teachers who care about my future	5.5	1.8
I'm happy to be at this school	5.7	1.7
I have close personal relationships at the university	5.5	1.8
I am satisfied with the social activities offered by the university	5.1	1.8
I think I have enough social skills to fit in well at college	5.7	1.7
I don't feel comfortable around other people at college	5.5	1.9
I am satisfied with my participation in the university's social activities	4.9	1.9
Lately, I've been feeling really lonely at school	5.5	2.0
All in all, I'd rather be at home than here	4.6	2.1
I have good friends and acquaintances at school I can talk to about any problems	5.6	1.9
I'm happy with my life at college	5.6	1.7
I'm happy with my decision to go to college	6.0	1.6
I wish I were at a different university	5.0	2.1
I hope to complete my education at this school	6.3	1.5
I'm thinking about transferring to another college	6.2	1.7
I'm thinking about dropping out of college for good	6.3	1.6
I'm seriously thinking about taking a break from university.	6.2	1.6
Lately, I've been feeling nervous	4.6	2.2

Table 1. Continuation

Variable	Mean	D.E.
Lately, I've been feeling sad and have had quite a few mood swings	4.7	2.2
Lately, I've been feeling tired most of the time	3.9	2.2
I find it hard to be alone and have so many responsibilities	5.0	2.1
Lately, I haven't been able to control my emotions	5.2	2.0
Lately, I've been having a good appetite	4.8	2.1
Lately, I've been having headaches	4.9	2.2
Lately, I've been thinking about seeking psychological help	4.7	2.4
Lately, I've lost or gained weight	4.1	2.3
Lately, I get angry very easily	4.5	2.2
Lately, I haven't been sleeping well	3.9	2.3
I often feel confused	4.6	2.2
I've been feeling great lately	5.0	1.8
I find it hard to cope with the stress that college causes me	4.6	2.1

Source: created by the authors based on the survey "Academic and Working Conditions of the Cross-Border Population", 2023

The explanatory variables used were country of birth (Mexico or the United States) and history of residence in the United States, categorized by length of stay in that country (< 1 year, 1 ≤ 5 years, and 5 years or more). Furthermore, other independent variables were explored, such as gender, age, living with parents, whether the individual attended school in the United States, whether they were employed and whether they worked in the United States,[2] whether they lived in the United States, whether they owned a car, linguistic acculturation to English and Spanish, and intercultural challenge. Of these variables, living with both parents, whether the respondent had studied in the United States, and current employment or residence in the United States were excluded from the models because they were not significant. Nonetheless, they were included in the descriptive analysis (see Table 2, which shows the independent variables explored).

It is important to note that two sociolinguistic acculturation indices were estimated, each addressing preference for cultural practices in English and Spanish separately (see Table 2). These indices result from an adaptation of the Acculturation Rating Scale I used by Cuellar et al. (1995) to measure orientation toward U.S. culture among Mexican immigrants in the United States. These indices were calculated using a short version of this scale, which consisted of the sum of eight items (on a scale of 1 to 5) regarding cultural practices associated with the English and Spanish

[2] Of the students who lived in the United States, 78% also studied there. The broken-down variable for years of residence in the United States had greater analytical power than the previous one, since it distinguished between different lengths of time spent in the country.

languages (with a range of 8-40), and their distribution was then classified into tertiles (see Table 2). The index of acculturation to English was classified as moderate (mean = 25), high (mean = 33) and very high (mean = 38), while the index of acculturation to Spanish was classified as moderate (mean = 29), high (mean = 36) and very high (mean = 39.8).

Meanwhile, the intercultural challenge index is derived from the Acculturation Rating Scale II, proposed by Cuellar et al. (1995), to measure difficulties in accepting "the other's" culture in a multicultural context. This index was calculated by summing six items (on a scale of 1 to 5) regarding ideas, behaviors, values, practices and customs (with a range of 6 to 30; see Table 2). "Mexicans" was used as the reference group for those born in the United States and "Americans" for those born in Mexico. Its distribution was also classified into tertiles: very low (mean = 7.7), low (mean = 13.9) and moderate (mean = 21.5).

On an exploratory basis, the models were built step by step to examine how the observed relations between the dimensions of adjustment and length of residence in the United States or birth in the United States (explanatory variables) changed when the remaining independent variables were introduced. Upon reviewing the results, it was decided to present two models for each adjustment category: the first using only the level of acculturation to the English language, and the second adding acculturation to the Spanish language, since this expository strategy made it possible to see how the relation between length of residence in the United States and socio-academic adjustment changed. Only those variables that were significant ($p < 0.1$) in any of the socio-academic or personal-emotional adjustment models were used in the final models.

Results

Characterization of college students based on their level of socio-academic or personal-emotional adjustment

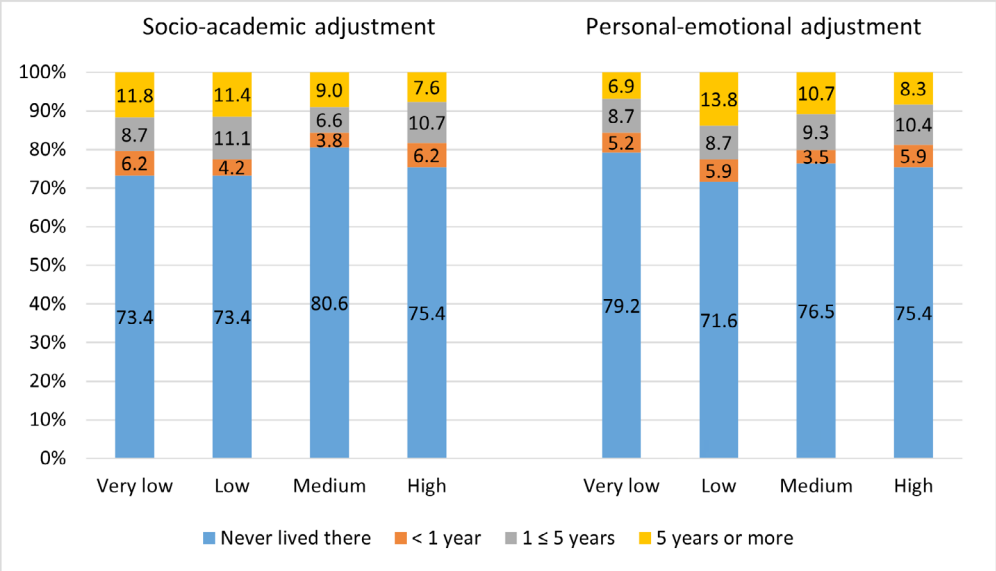
Figure 1 shows the percentage distribution of college students by years of residence in the United States, according to their level of academic adjustment. Of the entire sample, 76% had not lived in the United States, 5.1% had lived there for less than one year, 9.3% for between one and five years, and 9.9% for five years or more. On the left-hand side is the distribution according to socio-academic adjustment. There is a clear trend toward a higher concentration of students who have lived in the United States for five years or more among those with lower levels of socio-academic adjustment: only 7.6% of students with high socio-academic adjustment had lived in the United States, while this figure rose to 11.8% among students with very low socio-academic adjustment. In contrast, the same pattern is not observed for personal-emotional adjustment, where the largest concentration of students who have lived in the United States for five or more years is at the low and medium levels.

Table 2. Definition of variables selected for the analysis

Variables	Definition
Male	Dichotomous variable based on the gender with which the student identified: 1 for male, 0 for female
Age	Continuous variable indicating the student's age in full years (range 17-29)
Lives with both parents	Dichotomous variable indicating whether the student lives with both parents
Works	Dichotomous variable indicating whether the student is currently working
Works in the United States	Dichotomous variable indicating whether the student is currently working in the United States
Lives in the United States	Dichotomous variable indicating whether the student currently lives in the United States
Studied in the United States	Dichotomous variable indicating whether the student has ever studied in the United States
Years in the United States	Interval variable indicating the number of years the student has lived in the United States, categorized into four groups: Never lived there, < 1 year, 1 ≤ 5 years, and 5 years or more
Car	Dichotomous variable indicating whether the student owns a car or has one for personal use
English acculturation	Categorical variable indicating a preference for cultural activities in English, with three categories: moderate, high, and very high. These categories were recoded using the tertiles of the distribution of the sum of eight items, each with five options (from one to five, ranging from none to the highest frequency): *1*) I speak English; *2*) I like to speak English; *3*) I like music in English; *4*) I like watching TV shows or movies in English; *5*) I like consuming digital content in English; *6*) I like reading in English; *7*) I write in English; *8*) My thoughts occur in English
Spanish acculturation	Categorical variable indicating a preference for cultural practices in Spanish, with three categories: moderate, high, and very high. These categories were recoded using the tertiles of the distribution of the sum of eight items, each with five options (from one to five, ranging from none to highest frequency): *1*) I speak Spanish; *2*) I like to speak Spanish; *3*) I like music in Spanish; *4*) I like watching TV shows or movies in Spanish; *5*) I like consuming digital content in Spanish; *6*) I like reading in Spanish; *7*) I write in Spanish; *8*) My thoughts occur in Spanish
Intercultural challenge	Categorical variable indicating the level of affinity for the culture of the country where the respondent was not born, with three categories: none, low, and moderate. These categories were recoded using the tertiles of the distribution of the sum of six items, each with five options (from one to five, ranging from none to highest frequency): I have difficulty accepting *1*) some ideas of the...; *2*) some attitudes of the...; *3*) some behaviors of the...; *4*) some values of the...; *5*) some practices and customs of the...; *6*) … as close friends. In each case, "Mexicans" applies to those born in the United States and "Americans" to those born in Mexico.

Source: created by the authors

Figure 1. Percentage distribution of college students by number of years residing in the United States, according to their level of academic or personal-emotional adjustment

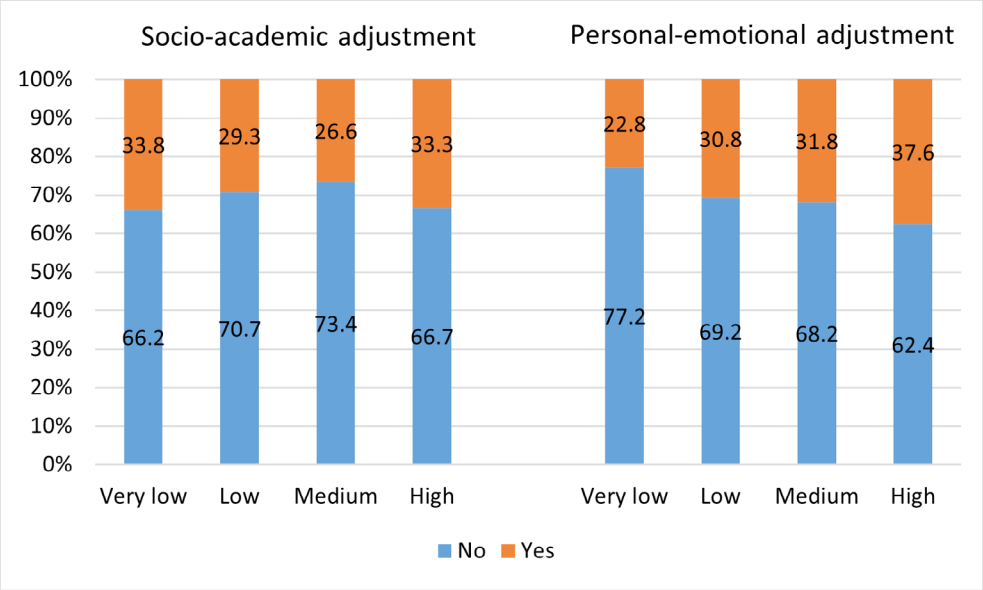


Source: created by the authors based on the survey "Academic and Working Conditions of the Cross-Border Population", 2023

Figure 2 illustrates the percentage distribution of college students based on whether they were born in the United States, broken down by level of academic adjustment. Of the total sample, 30.7% were born in the United States. No clear trend is observed among United States-born students in terms of distribution by socio-academic adjustment; rather, United States-born students are concentrated at both extremes. In contrast, there is a clear concentration of United States-born students at higher levels of personal-emotional adjustment, which could indicate that U.S. citizenship is a positive factor for this type of adjustment.

Table 3 presents the demographic and cultural characteristics of the total sample. This is a population with a medium-high socioeconomic status, in which a high proportion lives with their parents (two-thirds with both parents) and 74% own a car for personal use. Surprisingly, the students have a high rate of labor market participation: 46.6% are already working, and 11.7% are employed in the United States. Second, a significant portion of the sample has experience with cross-border socialization: 5% travel from the United States to Mexico to study, and one-quarter of the sample has completed some part of their education in the United States. This figure matches the percentage who reported having lived in the United States. This is reflected in the levels of linguistic acculturation. For example, acculturation to English was high, with 36.2% falling into the "very high" category, and 28.5% showing moderate acculturation to Spanish. In addition, 55% reported experiencing some degree of intercultural difficulty (low or moderate).

Figure 2. Percentage distribution of college students based on whether they were born in the United States, by level of academic or personal-emotional adjustment



Source: created by the authors based on the survey "Academic and Working Conditions of the Cross-Border Population", 2023

Table 3 shows a higher concentration of males in the "low" adjustment group than in the "high" adjustment group, as indicated by demographic and cultural characteristics. It also shows a lower percentage of students living with their parents in the "very low" adjustment group, indicating that a lack of social support could be a risk factor for socio-academic adjustment. Furthermore, the data show that the proportions of students who work, live or have studied in the United States are slightly higher among those with very low or low adjustment levels than among those with medium or high adjustment levels. Moreover, contrary to the notion that linguistic acculturation to English is a risk factor for adjustment, socio-academic adjustment is higher when a greater proportion of students have very high levels of acculturation to both English and Spanish than at other levels. On the other hand, there is a greater concentration of students who do not have difficulty accepting intercultural differences (no intercultural challenge) as the level of socio-academic adjustment increases.

Regarding demographic and cultural characteristics and personal-emotional adjustment, Table 3 shows an increase in the proportion of men as this type of adjustment increases, suggesting that men tend to exhibit higher levels of personal-emotional adjustment than women. In contrast, the opposite is true for socio-academic adjustment. Likewise, as personal-emotional adjustment increases, so does the proportion of students who own a car or have one for personal use, which may be linked to both higher socioeconomic status and better management of free time in cities with limited public transportation, such as border cities. Additionally, as personal-emotional adjustment increases, a higher proportion of students can navigate between cultures more easily (without intercultural challenges).

Table 3. Demographic and cultural characteristics of border students according to socio-academic and personal-emotional adjustment indices, 2023 (percentages)

Variables	% of socio-academic adjustment				% of personal-emotional adjustment				Total
	Very low	Low	Medium	High	Very low	Low	Medium	High	
Average age	21.2	20.7	20.6	20.4	20.5	20.8	20.8	20.9	20.7
Male	57.0	60.7	55.8	42.6	48.0	52.6	55.2	59.9	54.0
Lives with both parents	61.9	68.2	67.1	66.8	67.1	63.7	67.1	66.1	66.0
Works	47.1	52.6	46.0	40.8	45.3	46.4	47.4	47.4	46.6
Works in the United States	13.1	13.1	9.7	10.7	11.1	12.5	10.7	12.5	11.7
Lives in the United States	5.9	5.9	4.5	3.8	3.1	8.0	4.5	4.5	5.0
Studied in the United States	27.0	28.4	21.8	23.2	21.1	26.6	27.3	25.3	25.1
Car for personal use	72.7	76.5	70.6	76.8	68.5	74.7	74.7	78.5	74.1
English acculturation									
Moderate	36.0	31.8	33.2	24.2	29.4	31.5	33.2	31.1	31.3
High	29.4	33.9	33.2	33.6	30.4	32.5	32.5	34.6	32.5
Very high	34.6	34.3	33.6	42.2	40.1	36.0	34.3	34.3	36.2
Spanish acculturation									
Moderate	40.9	29.0	23.2	20.8	26.0	31.7	29.1	26.8	28.4
High	28.8	37.8	35.4	27.4	31.0	32.0	31.9	34.5	32.4
Very high	30.2	33.2	41.4	51.7	43.1	36.3	38.9	38.7	39.2
Intercultural challenge									
None	32.8	40.4	50.5	54.5	35.6	37.8	48.3	56.8	44.6
Low	25.4	31.0	23.2	20.8	24.9	30.1	25.2	20.2	25.1
Moderate	41.9	28.6	26.3	24.7	39.5	32.2	26.6	23.0	30.3
n	281	283	285	288	281	284	285	287	1137
% Per Line	24.71	24.9	25.1	25.3	24.7	25.0	25.1	25.2	100.0

Source: created by the authors based on the survey "Academic and Working Conditions of the Cross-Border Population", 2023

Finally, Table 4 presents the odds ratios for socio-academic or personal-emotional adjustment, based on the independent variables found significant in the ordinal logistic models for each adjustment type. Odds ratios (Exp β) are presented to facilitate understanding of the results. When the odds ratio is greater than one (> 1), it means that in that category (relative to the reference category) or at a higher value of the variable (when it is continuous), the likelihood of moving to higher categories on the adjustment scale is greater; whereas when it is less than one (< 1), that likelihood is lower. For socio-academic adjustment, in the first model, a lower likelihood of adjustment was associated with having lived in the United States for five years or more (odds ratio, OR = 0.71), compared with not having lived in this country; being older (OR = 0.9); being male (OR = 0.72); and low (OR = 0.58) or moderate (OR = 0.5) intercultural challenge, compared to none. In contrast, the likelihood of advancing to a higher level

of socio-academic adjustment was linked to increased sociolinguistic acculturation to English—26% for high acculturation and 37% for very high acculturation—compared to moderate acculturation.

In the second model of socio-academic adjustment in Table 4, this type of adjustment decreases when Spanish language use is moderate or high (versus very high), with odds ratios of 0.5 and 0.69, respectively. Furthermore, both length of residence in the United States and acculturation to the English language lose statistical significance with the introduction of acculturation to the Spanish language (see the summary of changes in Table 5). This may occur because the longer students spend in the United States and the more they acculturate to English, the less acculturated they become to Spanish, even if a student is bilingual and enjo ys using both languages (see Table 4). This confirms the importance of practicing Spanish for better socio-academic adjustment, which may become a focus of attention for university educational policies.

In terms of personal-emotional adjustment (see Table 4), a higher level of adjustment was associated with being born in the United States (71% higher than among those born in Mexico), being male (38% higher likelihood than among women), and owning a car for personal use (25% higher than among those who did not have this resource). Moreover, lower personal-emotional adjustment was associated with low (OR = 0.58) or moderate (OR = 0.50) levels of intercultural challenge, compared to none—that is, having some difficulty with intercultural coexistence. When a preference for practicing Spanish was added to the second model, the same results were observed.

Table 4. Odds ratios for better socio-academic or personal-emotional adjustment among border college students, 2023

Variables	Socio-academic				Personal-emotional			
	M1		M2		M1		M2	
Was born in the United States (No)	0.94		0.99		1.71	***	1.70	***
Years in the United States (Did not live there)								
< 1 year	u1.03		1.05		0.82		0.81	
1 ≤ 5 years	0.98		1.00		0.83		0.83	
5 years or longer	0.71	+	0.79		0.74		0.73	
Age	0.90	***	0.90	***	1.03		1.03	
Male (Female)	0.72	***	0.74	***	1.38	**	1.38	**
English acculturation (Moderate)								
High	1.26	+	1.21		0.98		0.99	
Very high	1.37	*	1.23		0.85		0.87	
Spanish acculturation (Very High)								
Moderate	---		0.50	***	---		1.09	
High	---		0.69	**	---		1.11	
Intercultural challenge (None)								
Low	0.58	***	0.62	***	0.58	***	0.58	***
Moderate	0.50	***	0.53	***	0.47	***	0.47	***
Car for personal use (No)	1.17		1.13		1.25	+	1.25	+
Log likelihood	-1538.6		-1525.6		-1541.0		-1540.6	

Note: significance level: ***p < .001, **p < .01, *p < .05, +p < .1. Reference categories for independent variables are shown in parentheses.
Source: created by the authors based on the survey "Academic and Working Conditions of the Cross-Border Population", 2023

Table 5. Major changes in models 1 and 2 of socio-academic adjustment

Variables	Socio-academic	
	M1	M2
Years in the United States (Did not live there)		
< 1 year	NS	NS
1 ≤ 5 years	NS	NS
5 years or longer	**Negative**	**NS**
English acculturation (Moderate)		
High	**Positive**	**NS**
Very high	**Positive**	**NS**
Spanish acculturation (Very high)		
Moderate	N/A	Negative
High	N/A	Negative

NS = not significant. N/A = not applicable. Changes are in bold.
Source: Table 4, same explanatory and control variables

Discussion and conclusions

This study aimed to analyze the academic adjustment of students born in the United States or with a history of residence there at a border university with a high proportion of these populations. The strategy involved using the Student Adaptation to College Questionnaire (SACQ) to measure academic adjustment alongside a series of independent variables quantitatively. The main finding was that, paradoxically, length of residence in the United States and being born in the United States were associated with academic adjustment in opposite ways. These associations depended on the specific dimension of adjustment: five years or more in the United States was negatively associated with socio-academic adjustment, while being born in the United States was positively associated with personal-emotional adjustment. Furthermore, linguistic acculturation into English and Spanish was significant for socio-academic adjustment, underscoring the importance of bilingualism for better academic adaptation. Conversely, intercultural challenge was a risk factor for both types of adjustment, along with various demographic factors.

First, it was found that U.S. citizenship was positively associated with personal-emotional adjustment, but not with socio-academic adjustment. This finding is consistent with other studies that document the positive role of U.S. citizenship in the psychosocial well-being of Mexican youth (Bojórquez et al., 2025). The perception of greater opportunities inherent in their social self-concept could influence personal-emotional academic adjustment (Bernal Ruiz & Gálvez Romero, 2017; Cortez-Román et al., 2015). Transnational students understand that U.S. citizenship broadens their opportunities by granting them the right to immigrate to the United States, thereby providing access to the labor market and enabling them to develop binational cultural

identities. This factor may be particularly relevant in a context of geographical proximity to the United States (Vargas Valle, 2025).

Second, the study found that five or more years of residence in the United States are associated with lower socio-academic adjustment among border college students, but not with personal-emotional adjustment. This is consistent with evidence regarding the academic difficulties faced by students with prolonged stays in U.S. schools—especially at the higher education level—who experience challenges related to language, identity and school culture in Mexico (Cortez-Román et al., 2015; Jiménez Díaz & Montoya Zavala, 2022; Nava Nava et al., 2017; Navarro-Hernández et al., 2023). Nevertheless, no negative evidence was found regarding time spent in the United States and its impact on personal-emotional adjustment, which may be because this is a select sample of students enrolled at a university that provides psychoeducational support to students from households with high rates of living with parents and financial stability.

Indices of sociolinguistic acculturation and intercultural difficulties (Cuellar et al., 1995) were included to determine whether the level of acculturation achieved in the United States was associated with poorer socio-academic adjustment among those who had resided in the country for longer. First, contrary to the initial hypothesis, high and very high levels of English acculturation had a protective effect on socio-academic adjustment, which may be linked to the use of bilingual competencies in the degree programs offered by the university under study. These findings are consistent with various studies documenting that, in certain educational settings, English language proficiency is valued so transnational students can establish themselves socially and academically (Christiansen et al., 2018; Cortez-Román et al., 2015; Jiménez Díaz & Montoya Zavala, 2022; Navarro-Hernández et al., 2023).

In contrast, having a moderate level of acculturation to Spanish was a risk factor for socio-academic adjustment, and having difficulty accepting the behaviors, practices and customs of people from the "other" culture was a risk factor for both socio-academic and personal-emotional adjustment. As previous studies have shown, while biculturalism serves as a protective mechanism for academic engagement and achievement, academic gaps in Spanish among transnational students can have negative consequences for these educational processes (Nava Nava et al., 2017; Navarro-Hernández et al., 2023; Vargas-Valle & Aguilar-Zepeda, 2020).

In addition to migratory and cultural factors, an interesting finding was that women exhibited greater socio-academic adjustment than men, but men showed better personal-emotional adjustment than women. In this regard, various studies (Caldera Montes et al., 2022; Kaim & Romi, 2025) have documented that while women show higher levels of academic engagement—for example, in completing activities and assignments—men devote more time to activities related to leadership and competition and cope better with, or experience less stress from, the challenging situations of college life.

This study raises questions for future research that incorporates mediating factors in socio-academic adjustment and their impact on successful college completion, such as ties that develop with local or transnational social networks, which may exert positive or negative influences on academic adjustment. One aspect that would be interesting to explore further through qualitative studies is how U.S. citizenship enhances young people's personal and emotional adjustment in this border context, as well as

the academic experience of students who cross the border daily from the United States, and the academic adjustment strategies of those transnational students who have spent little time in Mexico.

Mexico's northern border is characterized as a culturally hybrid region, with frequent and intense cross-border interactions and high levels of return migration from the United States. This research contributes to the study of the academic adjustment of young people born in the United States or with life experience in that country to higher education in the context of a private border university, which attracts students with bicultural and binational profiles by offering global degree programs or dual-degree opportunities. In this regard, on the one hand, it would be beneficial for the university to create a program to help university students catch up on academic deficiencies in Spanish, and on the other hand, to offer workshops to both migrant and non-migrant students aimed at "developing multicultural competencies that move students away from a territorial view of culture and toward a more dynamic approach to managing cultural capital" (Nava Nava et al., 2017, p. 133), thereby helping to improve intercultural coexistence.

Against the backdrop of anti-immigrant policies and the political and economic barriers that the children of Mexican immigrants face in accessing higher education in the United States, the fact that students successfully adapt academically to university life on Mexico's northern border is crucial, given its implications for their academic achievement and their future career paths as skilled workers on either side of the border.

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Alfredo Valadez-García
Mexican. Ph.D. in Economics from the Universidad Autónoma de Baja California. Full-time professor at Cetys Universidad. Research lines: economics of education, labor economics among young people and cross-border economics. Recent publication: Valadez-García, A., López-Leyva, J. A., Murillo-Aviña, G. J., & Mellink-Méndez, S. K. (2023). Determinant factors for border and cross-border entrepreneurship in the Cali-Baja region, Mexico-United States of America border. *International Entrepreneurship and Management Journal, 19*, 1425-1447. https://doi.org/10.1007/s11365-023-00876-z

Eunice D. Vargas-Valle
Mexican. Ph.D. in sociology with a specialization in demography from the University of Texas at Austin. Professor and researcher in the Department of Population Studies at El Colegio de la Frontera Norte (El Colef). Research lines: demography of children and youth, with an emphasis on education, migration, family and work; demography of Mexico's borders. Recent publication: Vargas Valle, E. D. (2025). National identifications of transnational students from the USA on the northwest border of Mexico. *International Migration, 63*(1), Article e13371. https://doi.org/10.1111/imig.13371

Javier Samaniego-Ojeda
Mexican. Master's degree in neuropsychology from Cetys Universidad. Educational psychologist at the Student Development Center at Cetys Universidad. Research lines: neuropsychological assessment, psychometric standardization, cognitive processes and educational research. Recent publication: Páez-Manjarrez, P., Maldonado-Torres, F. A., Samaniego-Ojeda, J., Exzacarías-Martínez, J. A., Imperial-Sosa, M. K., & Macías-Villanueva, A. V. (2023). Diseño, construcción y validación de un instrumento para medir factores de riesgo en estudiantes universitarios de primer ingreso. *Revista Complutense de Educación, 34*(2), 367-377. https://doi.org/10.5209/rced.79326

Francisco Antonio Maldonado-Torres
Mexican. Master's degree in neuropsychology from Cetys Universidad. Coordinator of the Student Development Center at Cetys Universidad. Research lines: neuropsychological assessment, psychometric standardization, cognitive processes and educational research. Recent publication: Páez-Manjarrez, P., Maldonado-Torres, F. A., Samaniego-Ojeda, J., Exzacarías-Martínez, J. A., Imperial-Sosa, M. K., & Macías-Villanueva, A. V. (2023). Diseño, construcción y validación de un instrumento para medir factores de riesgo en estudiantes universitarios de primer ingreso. *Revista Complutense de Educación, 34*(2), 367-377. https://doi.org/10.5209/rced.79326