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Review Article

Neuroeducation, social sciences and student dropout in the digital age

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Abstract

High rates of dropout from university are a worldwide concern. In an attempt to address this phenomenon, this study presents a predictive model for the level of adaptability of high school students intending to pursue a university education. The objective is to show the relationships existing between the three exogenous variables (study skills, information about the university, and self-efficacy expectations) and the endogenous variable (adaptability) included in the model. The study involved a sample of 290 high school students who had expressed their intention to pursue a university education. The results show a substantial and consistent relationship between the variables of the model, helping to predict the levels of academic adaptability of high school students planning to attend university. This is of interest in designing guidance for pre-university stages of education.

Keywords: student adjustment; educational opportunities; educational documentation; skills development

1.Introduction:

One of the psychoeducational problems that causes the greatest concern in the university context worldwide is the abandonment and prolongation of studies (Álvarez & Cabrera, 2020; García, 2019). It is a difficult problem to face due to the multidimensional nature of the factors that cause it: complex due to the different types of dropout that occur, worrying due to the large number of students involved, and of enormous importance due to the impact it has on students, families, institutions and the State (González et al., 2007; Schnepf, 2014; García & Adrogué, 2015; Tuero et al., 2018). The dropout rate (enrolled students who drop out of school without completing them) is among the standards used in quality assurance systems (Cabrera et al., 2006; Cardozo, 2009; Román, 2013).

And the reality is that in Spain approximately 30% of students drop out of undergraduate studies, around 10% change degrees and graduation rates are below 35%, far from the average of the Organisation for Economic Co-operation and Development (OECD). This, without a doubt, constitutes a negative indicator and the ineffectiveness of the training system itself (Himmel, 2002). It is a worrying reality, which is why the commitment of all countries to its resolution has been reinforced. The European Strategy 2020 includes the agreement acquired by the countries of the European Union to promote quality education that allows the average dropout rate to be reduced to a percentage of 10%.

In the global analysis of this phenomenon, there is agreement on the strong weight that previous training and guidance received have on adaptation and academic success to guide access to higher education. But the research carried out (García et al., 2016; Pérez et al., 2018; Sánchez & Elías, 2017) show that many students only when they arrive at university do they realise that they do not fit into the degree, that they do not have the skills to tackle academic tasks and that the chosen studies do not satisfy them, so adaptation is complicated and many end up dropping out.

These students, who have not adequately prepared for the transition, who have chosen the degree at the last minute, who are not committed to a vocational project, who do not have a good knowledge of themselves and do not have the necessary skills for social and academic integration at university, find it difficult from the beginning to adapt to the dynamics of higher education and end up leaving university or changing training (Bethencourt et al., 2008; Canales and de los Ríos, 2007; González-Ramírez & Pedraza-Navarro, 2017). Hence the importance of preparing adequately and in time for the transition, helping students to know and assess their characteristics, clarifying their interests, reviewing their expectations and starting to define a future training project from secondary and high school (Pérez et al., 2018; Tuero et al., 2018).

In this way, meaningful training trajectories can be built, where the decisions made respond to a reflective and informed process in which it is assessed whether each person has the appropriate adaptability skills to integrate into the training context to which the choice made leads them (Esteban et al., 2016; Romero-Rodríguez et al., 2019).

Self-efficacy expectations are considered a good predictor of adaptability, since people choose activities and make vocational decisions based on their cognitive mechanisms for assessing competencies (Conde et al.,

2017). Some factors, such as the regulation of effort, the projection towards the achievement of goals or satisfaction with the decisions made, are related to good integration and optimal performance in studies (Merino-Tejedor et al., 2017). Likewise, students who show good adaptation report having received information about the methodology and skills that are considered important to face the learning process (Hernández et al., 2005; Tortosa et al., 2016). The consolidation of academic strategies to face the study process also facilitates adaptation, in addition to the formative development itself and the improvement of academic performance (Barahona, 2014; Figuera et al., 2003; Trias et al., 2021).

In this way, those students characterized by having a good academic organization, adequate study skills and aspirations to high academic performance will have greater possibilities of adaptation and academic success (Duffy et al., 2015; Merino-Tejedor et al., 2016; Wilkins et al., 2018).Based on these factors, we propose a model that is useful to predict the levels of adaptability of high school students who intend to pursue university studies, thus preventing possible situations of failure and dropout in higher education. The assumption is that if students who transition to university have developed suitable competencies for study, information about university education and the studies they are going to pursue, and defined their expectations of self-efficacy, they will have higher levels of adaptability and, therefore, more likely to integrate socially and academically into this formative stage.

The general objective of the study was to validate a predictive model on the levels of adaptability of high school students who intended to pursue university studies, through a structural equation model oriented to prediction (Would, 1985) using the partial least squares method. Thus, the specific objectives were:

1. To build a predictive model on the adaptability of high school students in transit to the University.
2. To verify the feasibility and predictive validity of the defined measurement model.
3. Evaluate the quality of the structural model.
4. Validate the model and check the statistical inference from the bootstrap sampling technique.

Methodology

The study population consisted of those students who, at the time of administering the data collection test, were in the second year of baccalaureate and, in addition, intended to pursue a university degree. An intentional non-probabilistic sampling procedure was used for sample selection. These criteria allowed the participation of a total of 368 high school students. Of the 368, 78 students were eliminated because they did not intend to pursue university studies. Finally, the sample was made up of 290 people (n=290) with the sample characteristics defined in Table 1. The sample was obtained from secondary and university schools.

Tabla 1. Características de la muestra

Edad	Rango:16-21 años Media: $\bar{x}$ = 17.44 años Moda:17 años Desviación estándar: sd = 0.675 años
Género	Hombres: n = 121 (41.7%) Mujeres: n = 169 (58.3%)
Modalidad de bachillerato	Salud: n = 98 (33.8%) Científico-Tecnológico: n = 58 (20.0%) Humanidades: n = 48 (16.6%) Ciencias Sociales: n = 72 (24.8%) Artes: n = 14 (4.8%)

The participating sample complied with the recommendations of Hair et al. (2014): to have at least five times more observations than the variables under study. The "Questionnaire on Adaptability of Baccalaureate Students" was designed ad hoc with the aim of confirming the variables that help predict the levels of adaptability of Baccalaureate students with the intention of pursuing university studies. For the construction of the items integrated in each of the variables proposed in the instrument, different scales and previously validated theories were adapted and modified.

For the construction of the items referring to each of the variables proposed in the instrument, the sociocognitive theory of Lent et al. (2019) and the Career Adapt-Abilites Scale of Savickas (2005) were used. Prior to the construction of the final version of the questionnaire, different tests proposed by McMillan and Schumacher (2005) were carried out in order to ensure its reliability and validity. The tests carried out were:

Expert test, in which a specialist in the subject under study participated to assess and provide possible modifications, analysing the relevance, adequacy and understanding of the questions.

Formal test carried out by a specialist in research methodology in the field of social sciences who provided his vision in order to analyze the clarity and typology of the questions, as well as the adequacy of their nature for the statistical procedures that were to be carried out in the study. Pilot test, with the participation of 7 students who had similar characteristics to those of the final sample with the intention of checking the completion times, verifying that there were no comprehension difficulties related to the items, etc. To carry out the formal and expert test, the evaluators were provided with an instrument in which they had to assess the relevance, clarity and suitability of each item. This procedure made it possible to identify some improvements for the construction of the final instrument.

The instrument, in its final version, was configured around 40 questions distributed as follows: 2 dichotomous questions, 1 open question, 1

multiple-choice question and 36 Likert-type scale items. The questionnaire was also organised into two parts: the first was aimed at collecting sociodemographic identification data of the population (gender, age, type of baccalaureate that the students are studying and intention to pursue university studies), and the second part was intended to incorporate different Likert-type scales (where 1 was the lowest assessment and 7 the highest) aimed at measuring the variables of the explanatory model to be validated (Table 2).

The reliability index calculated from the coefficients of Cronbach's Alpha and McDonald's Omega is presented in the results section of this work. The information collection procedure was carried out during the months of April and May 2019. To this end, different secondary schools were contacted with the intention of requesting their voluntary collaboration to administer the test to students in the second year of baccalaureate who intended to study at university. Those centers and students who agreed to participate were sent a verbal informed consent, indicating what the study consisted of, its purposes and guaranteeing the confidentiality of the data obtained.

After the data collection process, the necessary statistical examinations were carried out to respond to the objectives of the study. The analyses presented in this work were made from the R Studio software (R *Development Core Team* v.1.2.5001) for the Microsoft Windows 10 operating system. In addition to the pre-installed packages in this program, the "plspm" (*Partial Least Square Path Modelling)* library developed by Sánchez (2013) was used for the analysis of the viability and validity of the generated measurement model, the evaluation of the structural model and the resampling through the bootstrap technique. The value was set at ≤0.05 for the different statistical tests performed. As a preliminary step, a filtering of the data was carried out (identification of missing values, multivariate outliers, review of multicollinearity and normality and reliability analysis with the Alpha and Omega indices)

Tabla 2. Variables e ítems del instrumento de recogida de datos

Variables	Ítems	Cod.
Adaptabilidad	Pienso en cómo será mi futuro académico cuando esté en la Universidad.	a1
	Sé que las decisiones que tome en la actualidad determinarán mi futuro académico.	a2
	Pienso en cómo puedo lograr mis metas.	a3
	Soy responsable de mis acciones.	a4
	En este momento me preocupo por mis estudios.	a5
	Antes de tomar una decisión, analizo las alternativas que tengo.	a6
	Me preocupo por conocer las distintas opciones formativas a las que puedo acceder una vez finalice los estudios de bachillerato.	a7
Competencias	Domino las tecnologías de la información y la comunicación.	c1
	Resuelvo de forma satisfactoria y autónoma las tareas que se me plantean.	c2
	Sé identificar las ideas más importantes de los contenidos que trabajamos en clase.	c3
	Sé organizar y establecer relaciones entre los contenidos que trabajamos en clase.	c4
	Considero que sé comunicarme de manera oral adecuadamente.	c5
	Considero que sé trabajar en equipo adecuadamente.	c6
	Planifico las tareas académicas (trabajos, preparación de exámenes, etc.) antes de empezar a hacerlas.	c7
	Sé resolver problemas académicos de manera eficaz.	c8
	Soy autocrítico con mi proceso de aprendizaje.	c9
	Soy capaz de elaborar un documento escrito sin cometer faltas de ortografía.	c10
	Considero que tengo conocimientos generales para tener éxito en la Universidad (matemáticas, lengua, idiomas, etc.).	c11
	Comprendo adecuadamente las ideas de los textos que trabajamos en clase.	c12
	Sé tomar decisiones académicas de manera autónoma.	c13
Información	Duración de la titulación.	iu1
	Salidas profesionales.	iu2
	Planes de estudios.	iu3
	Financiación de los estudios (becas y ayudas).	iu4
	Coste económico de la titulación.	iu5
	Lugar donde se imparte.	iu6
	Servicios que ofrece la Universidad.	iu7
	La metodología de las clases.	iu8
Expectativas	Tengo confianza en que voy a superar la etapa de bachillerato.	e1
	Considero que obtendré buenos resultados académicos en la Universidad.	e2
	La titulación que he seleccionado me ayudará a conseguir el trabajo que deseo.	e3
	Me considero una persona persistente en el logro de mis metas.	e4
	Tengo las habilidades para gestionar situaciones académicas imprevistas.	e5
	Considero que si me esfuerzo podré alcanzar mis metas.	e6
	Tengo las habilidades para gestionar el estrés que me puede producir tomar decisiones sobre mi futuro académico.	e7
	Confío en que podré aprender los conocimientos y competencias que son necesarias para tener éxito en la Universidad.	e8

Results

Data purification and preliminary analysis Initially, it was verified that the observations obtained for each of the items collected in the scale were within the expected range (in the case of this work, the data were in scores ranging from 1 to 7). In addition, it was confirmed that there were no missing cases for each of the questions proposed in the data collection instrument. Another aspect that was reviewed was the existence of extreme or atypical multivariate cases (outliers).

To do this, the Mahalanubis distance was calculated, which allows the distance between the data and the center of mass to be identified, in such a way that when the Mahalanobis value is equal to 0 the subject is at the center of the mass, while the further away from this value it begins to distance itself from the center of the mass and, therefore, it can be considered an outlier (Aldás & Uriel, 2017).

Taking a p=0.95 value as a reference, the Mahalanobis distance was 59.30, which allowed us to identify a total of 64 atypical cases, thus configuring the final sample in 226 participants (men=38.9%, women=61.1%, mean age=17.40 (sd=.633)). In addition to these previous parameters to filter the database to be used, the multicollinearity, normality and reliability of the endogenous and exogenous variables integrated in the scale were reviewed. Multicollinearity refers to those variables that are highly correlated and therefore redundant.

The review of multicollinearity was carried out through a bivariate correlation, identifying that the correlations, in all cases, were $r \leq .85$ (Holgado et al., 2019). The analysis of normality was performed by calculating asymmetry and kurtosis and the Shapiro Wilks and Kolmogorov Smirnov tests. According to the information presented in Table 3, the data did not follow a normal distribution.

Tabla 3. Índices de normalidad

Variables	Ítems	Skewness (Asimetría)		Kurtosis (Curtosis)	Shapiro Wilks (*p* valor)	Kolmogorov Smirnov (K-S) (*p* valor)
		Skewness	*p*			
Adaptabilidad	a1	-1.3465	<0.01	1.910644	<0.01	<0.01
	a2	-1.2827	<0.01	1.34144	<0.01	<0.01
	a3	-1.2648	<0.01	1.487262	<0.01	<0.01
	a4	-0.94233	<0.01	0.1618159	<0.01	<0.01
	a5	-1.4230	<0.01	1.992048	<0.01	<0.01
	a6	-1.0941	<0.01	1.020667	<0.01	<0.01
	a7	-1.1168	<0.01	0.8755115	<0.01	<0.01
Competencias	c1	-1.0244	<0.01	1.028083	<0.01	<0.01
	c2	-1.0091	<0.01	1.297205	<0.01	<0.01
	c3	-1.1258	<0.01	1.485533	<0.01	<0.01
	c4	-1.0864	<0.01	1.094267	<0.01	<0.01
	c5	-0.6843	<0.01	-0.1068338	<0.01	<0.01
	c6	-1.0349	<0.01	0.7048882	<0.01	<0.01
	c7	-0.78928	<0.01	-0.1096007	<0.01	<0.01
	c8	-1.0687	<0.01	1.338701	<0.01	<0.01
	c9	-1.1013	<0.01	1.249457	<0.01	<0.01
	c10	-0.82331	<0.01	-0.3870506	<0.01	<0.01
	c11	-0.96131	<0.01	0.5392759	<0.01	<0.01
	c12	1.1021	<0.01	1.208694	<0.01	<0.01
	c13	-1.3029	<0.01	1.654657	<0.01	<0.01
Información	iu1	-1.5703	<0.01	1.62077	<0.01	<0.01
	iu2	-1.0688	<0.01	0.4445343	<0.01	<0.01
	iu3	-0.74815	<0.01	-0.3989714	<0.01	<0.01
	iu4	-0.28242	<0.01	-1.072861	<0.01	<0.01
	iu5	-0.49893	0.002	-1.1172	<0.01	<0.01
	iu6	-1.4059	<0.01	0.8733724	<0.01	<0.01
	iu7	-0.35293	0.029	-0.9934891	<0.01	<0.01
	iu8	-0.24094	0.132	-1.059711	<0.01	<0.01
Expectativas	e1	-1.4852	<0.01	1.763417	<0.01	<0.01
	e2	-0.88659	<0.01	0.9153894	<0.01	<0.01
	e3	1.1853	<0.01	0.9352473	<0.01	<0.01
	e4	-1.1140	<0.01	0.9240657	<0.01	<0.01
	e5	-0.68687	<0.01	-0.1793669	<0.01	<0.01
	e6	-1.238	<0.01	0.665006	<0.01	<0.01
	e7	-0.64763	<0.01	-0.1222421	<0.01	<0.01
	e8	-0.93786	<0.01	0.1610591	<0.01	<0.01

The reliability analysis of the variables proposed in the instrument was carried out by calculating Cronbach's alpha coefficient and McDonald's omega coefficient. Taking into account that the data of the variables studied in this work met the assumptions of tau-equivalence, unidimensionality and that the measurement scale was continuous (Raykov & Marcoulides, 2017), Cronbach's alpha test was performed, which yielded an overall value of α=0.97. The calculation of McDonald's Omega coefficient was also carried out because it was more robust and more efficient in the analyses associated with social sciences (Peters, 2014). The value of this Omega was Ω=0.98. Following the approaches of Ventura-León and Caycho-Rodríguez (2017), the values obtained in the Alpha and Omega tests indicated excellent internal consistency (see Table 4). Both tests were applied to the 36 Likert-type scale items of the instrument constructed.

Tabla 4. Índices de normalidad

Variables	Ítems	Alfa de Cronbach (α)		Omega de McDonald (Ω)	
Adaptabilidad	a1	0.85		0.80	
	a2	0.84		0.80	
	a3	0.89	0.94	0.83	
	a4	0.89		0.83	0.95
	a5	0.87		0.86	
	a6	0.85	0.97	0.81	0.98
	a7	0.82		0.75	
Competencias	c1	0.63		0.61	
	c2	0.87		0.83	
	c3	0.85	.95	0.81	.96
	c4	0.80		0.76	
	c5	0.78		0.72	
	c6	0.73		0.65	
	c7	0.66		0.56	
	c8	0.89		0.84	
	c9	0.81		0.74	
	c10	0.73		0.65	
	c11	0.87		0.82	
	c12	0.88		0.83	
	c13	0.88		0.83	
Información	iu1	0.66		0.51	
	iu2	0.79		0.66	
	iu3	0.88		0.80	
	iu4	0.85	0.92	0.80	0.95
	iu5	0.86		0.84	
	iu6	0.81		0.69	
	iu7	0.85		0.80	
	iu8	0.80		0.77	
Expectativas	e1	0.84		0.78	
	e2	0.86		0.85	
	e3	0.81		0.75	
	e4	0.92	0.95	0.88	0.97
	e5	0.86		0.78	
	e6	0.87		0.82	
	e7	0.79		0.72	
	e8	0.90		0.84	

Model of structural equations based on the partial least squares method. As can be seen from the results presented above, the data respond to the assumption of the lack of a normal distribution, so the method for the realization of a predictive structural model is through a non-parametric procedure (Hair et al., 2017). In this particular case, it was proposed to perform a structural equation by the partial least squares method.

The first iteration of the constructed model suggested that the commonality of items c1 and c7 of the Competencies variable was less than 0.6 (Gefen et al., 2000). Therefore, it was decided to eliminate these items from the initial model. In this way, a new iteration was generated for the model with the definition presented in Table 5.

Tabla 5. Definición del modelo

Variables	Ítems	Tipo de variable
Competencias	c2, c3, c4, c5, c6, c8, c9, c10, c11, c12, c13	Exógena
Información	iu1, iu2, iu3, iu4, iu5, iu6, iu7, iu8	Exógena
Expectativas	e1, e2, e3, e4, e5, e6, e7, e8	Exógena
Adaptabilidad	a1, a2, a3, a4, a5, a6, a7	Endógena

Feasibility and validity of the measurement model. To verify the unidimensionality of the manifest variables (Table 6), the Cronbach's Alpha coefficients (the scores must be ≥0.7 (Ventura-León & Caycho-Rodríguez, 2017), the Gillon-Goldstein Rho value (values ≥0.7 (Sánchez, 2013), the first eigenvalue (must be greater than 1 (Laverde & Gómez, 2015) and the second eigenvalue (cannot exceed a score of 1 (Laverde & Gómez, 2015)

Tabla 6. Unidimensionalidad del modelo

Variables	Alfa de Cronbach	Rho de Gillon-Goldstein	Primer autovalor	Segundo autovalor
Competencias	0.95	0.96	7.61	0.67
Información	0.92	0.93	5.28	0.94
Expectativas	0.94	0.95	5.85	0.56
Adaptabilidad	0.93	0.95	5.11	0.42

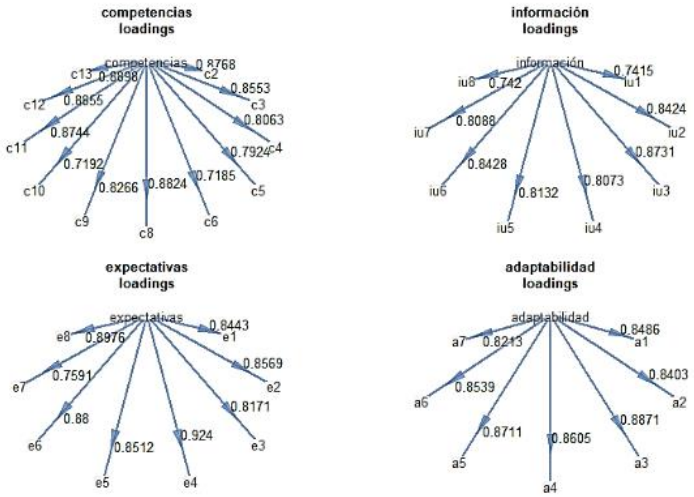
The burden of each item was higher than 0.7, which, according to Gefen et al. (2000), are adequate. The data on the commonality of each question were located at the minimum thresholds established by Sánchez (2013), who points out that these values must be greater than 0.49 or 0.5 to explain more than 50% of the variance of the latent variables.

Tabla 7. Cargas y comunalidad de los ítems

Variables	Ítems	Cargas	Comunalidad
Competencias	c2	0.87	0.76
	c3	0.85	0.73
	c4	0.80	0.65
	c5	0.79	0.62
	c6	0.71	0.51
	c8	0.88	0.77
	c9	0.82	0.68
	c10	0.71	0.51
	c11	0.87	0.76
	c12	0.88	0.78
	c13	0.88	0.79
Información	iu1	0.74	0.55
	iu2	0.84	0.71
	iu3	0.87	0.76
	iu4	0.80	0.65
	iu5	0.81	0.66
	iu6	0.84	0.71
	iu7	0.80	0.65
	iu8	0.74	0.55
Expectativas	e1	0.84	0.71
	e2	0.85	0.73
	e3	0.81	0.66
	e4	0.92	0.85
	e5	0.85	0.72
	e6	0.88	0.77
	e7	0.75	0.57
	e8	0.89	0.80
Adaptabilidad	a1	0.84	0.72
	a2	0.84	0.70
	a3	0.88	0.78
	a4	0.86	0.74
	a5	0.87	0.75
	a6	0.85	0.72
	a7	0.82	0.67

The load that each item has with its respective variables is visually presented in Figure 1.

Figura 1. Cargas de los ítems



Finally, the discriminant validity of the variables was checked (Table 8). To this end, it was confirmed that the highest load of each item was associated with the variable that had theoretically been defined (Henseler et al., 2014).

Tabla 8. Cargas cruzadas de los ítems

Ítems	Variables	Carga en competencias	Carga en información	Carga en expectativas	Carga en adaptabilidad
c2	Competencias	0.87	0.57	0.75	0.76
c3		0.85	0.55	0.71	0.73
c4		0.80	0.57	0.69	0.71
c5		0.79	0.49	0.68	0.64
c6		0.71	0.61	0.63	0.64
c8		0.88	0.53	0.77	0.73
c9		0.82	0.56	0.72	0.77
c10		0.71	0.54	0.54	0.57
c11		0.87	0.58	0.77	0.71
c12		0.88	0.53	0.75	0.72
c13		0.88	0.65	0.80	0.77
iu1	Información	0.69	0.74	0.68	0.71
iu2		0.62	0.84	0.65	0.63
iu3		0.54	0.87	0.59	0.56
iu4		0.48	0.80	0.51	0.49
iu5		0.47	0.81	0.51	0.48
iu6		0.63	0.84	0.70	0.67
iu7		0.41	0.80	0.50	0.45
iu8		0.37	0.74	0.47	0.40
e1	Expectativas	0.76	0.60	0.84	0.72
e2		0.70	0.59	0.85	0.70
e3		0.69	0.61	0.817	0.70
e4		0.80	0.66	0.92	0.80
e5		0.77	0.64	0.85	0.71
e6		0.74	0.68	0.88	0.78
e7		0.64	0.54	0.75	0.53
e8		0.75	0.67	0.89	0.73

Evaluation of the structural model. The R2 coefficient determines the amount of variance explained in the endogenous variable from the predictor variables included in the model (exogenous). As can be seen in Table 9, in the model proposed in this study, an R2=0.78 was obtained, which according to Hair et al. (2017) has a substantial predictive capacity. The commonality index, in all cases, was greater than 0.5 (Sánchez, 2013), the mean redundancy of the endogenous variable exceeded the score of 0.5 (Sánchez, 2013) and the mean variance extracted (AVE) was greater than 0.5 in all cases (Fornell & Larcker, 1981). The scores obtained for the different coefficients and indices exceeded the critical values established by the literature, so an adequate internal model was available that contributed to predicting the endogenous variable.

Tabla 9. Coeficiente de determinación, comunalidad, índice de redundancia y AVE

Variables	Tipo	R2	Comunalidad media	Redundancia media	AVE
Competencias	Exógena	0.00	0.69	0.00	0.69
Información	Exógena	0.00	0.65	0.00	0.65
Expectativas	Exógena	0.00	0.73	0.00	0.73
Adaptabilidad	Endógena	0.78	0.73	0.57	0.73

In addition, the overall adequacy index (GoF) was used to test the predictive validity and overall performance of the model. Sánchez (2013) places the critical point of a GoF with "very good" results starting at 0.7. In the case of the model presented in this work, the GoF index was 0.74, which indicates that the predictive power of the model was 74%. The results of the regression of each endogenous variable (Table 10) were significant for all cases (t-values far from 0 and PR(>|t|) scores close to each other a 0).

Tabla 10. Significativa de las regresiones

Variables	Estimado	Error estándar	*t* value	PR(>|t|)
Competencias	0.48	0.06	7.75	<0.01
Información	0.13	0.04	2.97	<0.01
Expectativas	0.32	0.06	4.77	<0.01

Following the interpretation of Domínguez-Lara (2018), the relationship (see Table 11) between the variables Competencies and Adaptability showed a large effect size (>0.35), between Expectations and Adaptability a medium magnitude (>0.15) and between information and expectations small (>0.02).

Tabla 11. Efectos directos, indirectos y totales del modelo

Relaciones	Efectos directos	Efectos indirectos	Efectos totales
Competencias→Información	0.00	0.00	0.00
Competencias→Expectativas	0.00	0.00	0.00
Competencias→Adaptabilidad	0.48	0.00	0.48
Información→Expectativas	0.00	0.00	0.00
Información→Adaptabilidad	0.13	0.00	0.13
Expectativas→Adaptabilidad	0.32	0.00	0.32

Bootstrap. The validation of the model and statistical inference was carried out using the bootstrap resampling technique (Sánchez, 2013). In this particular case, 5000 boostrap samples were used. The loads of the items in their respective variables and the results of the R2 coefficient of determination of the original model reached scores similar to those obtained in the boostrap procedure, identifying no statistically significant differences. This suggested that the model constructed had a consistent relationship between the variables. However, the information-adaptability pathway coefficient suggested statistically significant differences (Table 12), slightly improving the score obtained through the bootstrap, going from a pathway coefficient of 0.1390678 to 0.1395305.

Tabla 12. Valores de coeficientes de ruta en Bootstrap

Variables	Original	Bootstrap	Error estándar	Percentil 025	Percentil 975
Competencias→Adaptabilidad	0.48	0.48	0.06	0.34	0.6
Información→Adaptabilidad	0.13	0.13	0.05	0.04	0.2
Expectativas→Adaptabilidad	0.32	0.32	0.08	0.15	0.48

Conclusions

The aim of this work was to propose a predictive model on the level of adaptability of high school students who intend to pursue university studies. Adaptability is a basic and essential component in the processes of transition and social and academic integration in university stages, which helps to reduce the problems of academic failure and dropout. We agree with other authors (Ramírez et al., 2003; Savickas, 2005) on the need to learn to manage the changes that are associated with the different life transitions and respond to the demands of each context.

In the case of the transition to higher education, students face a complex process that entails a diversity of changes of various nature and that require the mastery of different skills and adaptability competencies to achieve good social and academic integration. In relation to this topic and following the partial least squares method, a predictive model of

adaptability of high school students with the intention of pursuing university studies was developed. Although there are several models proposed to predict adaptation to university (Blanco, 2006; Joireman & Abbott, 2001; Kember & Leung, 2005; Núñez, 2007), the predictive model presented in this work has as its strength the relationships established between different variables that until now had not been studied in a combined manner.

The model is theoretically and operationally based on three exogenous variables (competencies, information and self-efficacy expectations) and one endogenous variable (adaptation). Based on the coefficient of determination (R2=0.78) and the goodness of fit index (GoF=0.74), the model has a substantial and consistent predictive value, which suggests that those high school students with the intention of accessing university and who have an adequate development of competencies for study, with adequate information about the degree they are going to study and with good expectations of self-efficacy, they have higher levels of adaptability, and therefore, it could be expected that at the time of access to university studies they will perform a better social and academic integration in this formative stage, thus avoiding possible situations of failure or abandonment of studies.

Of the relationships found in the model, it is worth highlighting the value of the route coefficient of the variable "competencies for study", with a large effect magnitude (d=0.48). In other words, the competencies for study appear as the variable with the highest predictive value on the levels of adaptability of baccalaureate students. To a lesser extent, "self-efficacy expectations" contribute to predicting the adaptation of students with an effect size with a mean value (d=0.32).

Finally, the route coefficient of the variable "information" yielded a value of the effect size small (d=0.13). These results coincide with other studies in which the relationship between the variables studied and academic adaptability has been analyzed. Indeed, the skills to cope with class tasks (Fonseca & García, 2016), academic information (Figuera et al., 2003) or students' expectations of results (Hernández et al., 2019) help to predict students' adaptability processes.

Domínguez-Lara and Fernández-Arata (2019) also agree on the importance of giving students the opportunity to live successful training experiences through the performance of tasks of increasing complexity, acquiring skills to deal with obstacles or receiving training in the management of anxiety in complex situations. We consider that all these actions are necessary to help students, from the moment they start their higher education, to manage their career, creating closeness and promoting a true sense of institutional belonging, to reinforce permanence and stop dropouts.

As limitations of the research, it should be noted that, although it is true that the three exogenous variables proposed in the predictive model exceed the critical values and the general goodness of fit index is substantial, the variables "expectations" and "information" present a discriminant and predictive value that can be improved. Hence, with a view to future research, the data collection instrument must continue to be refined in order to increase its predictive value. Likewise, it would be of interest to follow up through longitudinal studies with high school students who are transitioning to university to analyze the level of integration achieved and the influence of the proposed variables.

The results serve as a starting point for the design of Transition Guidance programmes, in which students work on information activities about university studies, develop learning skills and clarify the expectations of self-efficacy of each one in relation to their academic interests. Through these programmes, the necessary resources will be offered to help students build coherent projects that guide the educational trajectory and help to improve the levels of academic adaptability of students, thus allowing baccalaureate students with the intention of pursuing university studies to develop a better process of social and academic integration.

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