

## Article

# Adapting as I Go: An Analysis of the Relationship between Academic Expectations, Self-Efficacy, and Adaptation to Higher Education

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**Abstract:** Transition to higher education is increasingly becoming a common stage in young adulthood, which highlights the importance of studying what could contribute for a better adaptation to higher education. The aim of this study was to explore the relationship between academic expectations, self-efficacy, and adaptation to higher education during the first two years of college (i.e., the first two years of a higher education degree). Portuguese college students participated in a longitudinal data collection resorting to the Academic Expectations Questionnaire (T1 and T3), the Self-Efficacy in Higher Education Scale (T2 and T3), and the Questionnaire for Higher Education Adaptation (T2 and T3). Structural equation modeling analysis was conducted to test a model correlating academic expectations, self-efficacy, and adaptation, as well as a mediation model where a full mediation of self-efficacy was observed between the relationship between academic expectations and higher education expectations. This study delivers a unique longitudinal view on the experience of the first two years of college, showing a significant role of expectations and self-efficacy in order to achieve a better adaptation process. Results are useful for institutions to adapt the way they present themselves and manage students' expectations.

**Keywords:** academic expectations; self-efficacy; higher education adaptation; structural equation modelling



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## 1. Introduction

Higher education (HE) has become one of the main stages of young adulthood in developed countries. In Portugal, for instance, there has been an increase of 33.478 in people finishing HE degrees between 2000 and 2020 [1]. This trend of rapid expansion of tertiary education spread internationally in the last decades [2]. For this reason, it has become important to study what HE experiences and their consequences look like. This study's main aim was to explore the relationship of three important variables in the experience of HE (academic expectations, self-efficacy, and adaptation to HE) in the first two years of college.

### 1.1. Academic Expectations

Academic expectations can be built through previous academic experiences and/or future projects [3], and will be influenced by educational experiences, familiar, social, and economic factors, and information given by the HE institution itself [4]. Young adults positively anticipate their entrance to HE, with a posterior decrease, especially in the areas of institutional and vocational development, and think the HE institution has a great responsibility for career and professional growth (e.g., [3]).

Facing the progressive differentiation of students, studying academic expectations helps HE institutions learn how they should advertise academic experiences, prompting

students to begin their academic experience with expectations that benefit their adaptation and satisfaction. Recently, Araújo and collaborators [5] conducted a study with 2,478 HE students using a person-centered approach through latent profile analysis and classifying the participants with respect to their expectations on the quality of education, political and citizen involvement, social interactions, and social pressure. Most students (84%) presented a profile with moderate levels of expectations, 8% of students presented very high expectations, 4% presented very low levels of expectations, and there were 4% of students who presented high expectations for the quality of education and for political and citizen involvement, but low expectations for social interaction and social pressure (e.g., family expectations).

### *1.2. Self-Efficacy in Higher Education*

According to Bandura's social cognitive theory, self-efficacy is the judgement that a subject has about their own capabilities to organize and execute courses of action that are needed to reach performance goals [6]. In the context of HE, Polydoro and Casanova [7] define self-efficacy as the set of student beliefs about his/her ability to plan and perform certain tasks, in order to fulfill HE requirements and goals. Bandura [8] explains that behavior changes are moderated by self-efficacy expectations that determine how much effort and time will be invested on academic challenges and aversive experiences. Bandura explains that people with low self-efficacy in a task will avoid it, whereas those with high self-efficacy in that task believe in themselves and value their abilities, not giving up. It is important to highlight, however, that according to Bandura's conceptualization self-efficacy is task-specific. What this means is that while I can believe my abilities are adequate for a task in a certain dimension, and therefore feel more motivated to invest, in other tasks from the same dimension I might have low self-efficacy and therefore be less motivated to invest effort and time.

### *1.3. Adaptation to Higher Education*

Academic adaptation is a complex process demanding adaptive behaviors that need to be acquired with competence (e.g., [9]), and which include several factors related to academic experiences, achievement, and institutional development [10]. Academic experiences are often mistaken for academic adaptation. We argue that adaptation is a broader concept, more focused in the way challenges in the academic context are faced and overcome, whereas academic experiences are merely the description of what happens in this context. Research suggests that academic experiences are one of the main factors that contribute to HE adaptation (e.g., [11]). In this study, we have in consideration the conceptualization of HE adaptation as a dynamic and multidimensional phenomenon that is built from academic experiences.

### *1.4. Academic Expectations and HE Adaptation*

The relationship between academic expectations and adaptation to HE has been well established. Research shows that students with high academic expectations better assess experiences lived further on, probably due to a higher disposition and motivation caused by initial high expectations, resulting in better investment in academic experiences [9]. Authors have observed the correlation between high academic involvement, degree satisfaction, and HE adaptation (e.g., [10]). The positive correlation between expectations and experiences has also been observed in different studies, especially for the social involvement, vocational and career perspectives, and extracurricular activities (e.g., [12]). According to Farias and Almeida [13], academic expectations are predictive to HE adaptation, well-being, academic achievement, and degree and institution satisfaction. This might happen because positive academic expectations contribute to more goal-oriented behavior—when we have expectations for success, we tend to initiate and maintain behavior more easily; if we expect to fail in a task, we will tend to give up and walk away [6].

According to Araújo and collaborators [14], expectations not meeting reality influences outcomes, such as academic adaptation, academic achievement, involvement, permanency in the degree, and student satisfaction in HE. Farias and Almeida [15] obtained four profile levels for HE expectations and lived experiences in a Portuguese context: surprised students (experiences better/superior than expected); realistic students (expectations corresponded to experiences); moderately disappointed students; and disappointed students. For these last two, experiences were worse than expectations. Surprised and realistic students showed better levels of time management, studying methods, vocational development, and adaptation to the HE institution as well as involvement in extracurricular activities and better mental well-being. Students with realistic and positive expectations about their experiences in HE revealed better indicators of academic and social adjustment, as well as better academic performance [5,16]. It seems, therefore, that students whose expectations do not match real HE experiences are at a disadvantage both for academic and social domains. Therefore, the mismatch between expectations and experiences could be seen as an at-risk indicator.

### *1.5. The Role of Self-Efficacy*

Higher levels of self-efficacy correlate to better adaptation, performance, and adjustment [10,17]. This might be because high self-efficacy may lead to more effort on a certain task [8], and it is related to better time management skills and pleasure [18] and with the definition of mastery of goals, higher academic achievement, and the selection of more challenging tasks [19]. High self-efficacy also relates to behaviors facilitating adaptation, such as participation in extracurricular activities [20]. Accordingly, Adcroft [21] observed a correlation between motivation to learn, the importance and interest that students report for learning and their beliefs about how they will do in HE. There is not yet much literature that relates self-efficacy directly to academic expectations and HE adaptation. However, studies show that self-efficacy correlates to academic achievement (e.g., [22]). Nevertheless, academic adaptation is not only about academic achievement. For this study, we consider self-efficacy's potential mediation role on the well-established relationship between academic expectations and HE adaptation.

Our main aim was to explore the relationship between academic expectations, self-efficacy, and adaptation in HE, in the Portuguese context. We integrated existing literature in a model to be tested by longitudinal data collected with HE students, expecting to observe high levels of academic expectations, especially for social interactions, employability training, and quality in education (H1, e.g., [23]). We also expected HE adaptation to be positively influenced by academic expectations (H2, e.g., [10]). Thirdly, we expected to find a model that positively correlated all three variables and their factors, in the 1st and 2nd years of studies simultaneously (H3). Finally, we expected to find a mediation role of self-efficacy in the relationship between academic expectations and HE adaptation (H4). A structural equation modelling (SEM) analysis was conducted, relating academic expectations, self-efficacy, and adaptation to HE in the 1st and 2nd years. A mediation model was tested where self-efficacy in the 1st year mediated the relationship between expectations in the 1st year and adaptation in the 2nd year.

This research, joining the SEM statistical approach to longitudinal data, could have the potential to open doors for fellow researchers to deepen the analysis for specific domains in HE (e.g., social, academic, vocational), having the current knowledge as a starting point. We also consider that this study provides evidence on the importance of expectations for HE adaptation, suggesting it should be further explored by HE institutions to make sure students become well-engaged with their training and academic environment.

## **2. Materials and Methods**

### *2.1. Data Collection and Treatment*

Data was collected for four years in a Portuguese private university in the center of Portugal, from 2016 to 2020. Students were invited to participate during a class, in a

previously fixed schedule, with the teacher. Their participation was voluntary, and all students were informed of their rights to confidentiality. Students started by filling out a first questionnaire (T1) at the beginning of the school year, which had different scales with variables related to HE experiences, including the Academic Expectations Questionnaire (AEQ; [24,25]) and sociodemographic information. A couple months later the second questionnaire was filled out (T2), with several other measures, including the Adaptation to Higher Education Questionnaire (AHEQ [14]), and the Self-Efficacy in Higher Education Scale (SHES [7], adapted to the Portuguese context [26]). Finally, at the end of the 1st semester of the 2nd year, participants filled out a third questionnaire (T3), which included all three scales.

## 2.2. Participants

A total of 522 students participated consistently in the study. These included participants that entered HE in 2016, 2017, 2018, and 2019, having four different cohorts of students. Participants' ages varied between 17 and 63 ( $M = 20.33$ ,  $SD = 5.82$ ) and the vast majority (83.7%) was female. The 4 cohorts had similar samples, varying between 125 and 142 participants per cohort.

## 2.3. Research Instruments

### 2.3.1. Academic Expectations Questionnaire (AEQ)

This questionnaire assessed academic expectations by measuring students' beliefs and attitudes about college. This scale was adapted from Deaño and collaborators [24]. The first version used (in T1) had 42 items, however, after preliminary analysis, it was decided to use a shortened version of the scale, validated by Casanova and collaborators [25], with 6 factors: employment training/practice (student's expectations to obtain the necessary conditions to get a job and enter the job market, e.g., "Ensure a good professional career after my degree"); personal and social development (how much students value the autonomy, identity, self-confidence and living new experiences, e.g., "Become a more responsible and autonomous person"); student mobility (how much a student is willing to participate in mobility programs in the academic context, e.g., "To be able to do an internship in another country"); political involvement and citizenship (students' motivation to discuss politics, society and the country economy, to contribute to a better society and be an active citizen, e.g., "Understand how I can make the world and society better"); social pressure (the way the students look to meet other people's expectations, namely family, friends and peers, about his/her experience in the academic context, e.g., "Do not disappoint my family or friends regarding my academic achievement") and social interaction (students' expectations to get socially involved and have fun in socialization activities in the HE context, e.g., "Make new friends with whom I can socialize outside of classes"). Scores for the scale and its factors were obtained by calculating the mean of the respective items. The instrument is answered in a Likert scale from 1 (Completely disagree) to 6 (Completely agree), and higher scores represent higher expectations.

### 2.3.2. Self-Efficacy in Higher Education Scale (SEHES)

Originally developed by Polydoro and Casanova [7] and adapted to the Portuguese context [26], this scale assesses self-efficacy in HE using 20 items distributed throughout 3 factors: academic self-efficacy (the confidence of one's ability to learn, demonstrate and apply classes content, e.g., "Learning contents that are necessary for my training"); self-efficacy for studying regulation (the confidence in one's ability to establish goals, make choices, plan, meet deadlines and self-regulate one's own actions in the learning process, e.g., "Motivate myself to do the activities related to the degree"); and self-efficacy for social interaction (confidence in one's ability to relate to peers and teachers, e.g., "Establish friendships with peers from my degree"). Scores for the scale and its factors were obtained by calculating the mean of the respective items. High means represent high self-efficacy.

The instrument is answered in a 6-point Likert scale ranging from “Not confident at all” to “Totally confident”.

### 2.3.3. Adaptation to Higher Education Questionnaire (AHEQ)

The original scale [14] had 56 items distributed by 6 factors: career project (referring to the integration of HE experience in the planning and exploration of the student’s career; e.g., “I feel that with this degree I will be able to reach my goals”), social adaptation (relating to social integration, namely the beginning of new friendships; e.g., “For me it’s easy to establish new friendships with peers from my degree”), personal-emotional adaptation (reporting feelings of low self-esteem and low physical and psychological well-being related to the experience on HE; e.g., “Lately I’ve been feeling sad or down”), study adaptation (relating to studying and learning behaviors in the classroom; e.g., “I plan my study activities daily”) and institutional adaptation (related to institutional environment, namely professors and staff workers, as well as the institution’s spaces and services; e.g., “I identify myself with my university—for instance, with values and rules”). We used the shortened version, with a total of 40 items distributed throughout 5 factors with 8 items each. This version is not yet published but has been used in at least one other study [27], showing satisfactory psychometric properties:  $\alpha = 0.89$  for career project,  $\alpha = 0.88$  for social adaptation,  $\alpha = 0.86$  for social and emotional adaptation,  $\alpha = 0.79$  for study adaptation and  $\alpha = 0.80$  for institutional adaptation. The general scale had a Cronbach alpha of 0.85. Scores for the scale and its factors were obtained by calculating the mean of the respective items. The instrument is answered in a Likert scale from 1 (Completely disagree) to 5 (Completely agree). A higher personal-emotional adaptation average is representative of a lower adaptation in this area, unlike all other factors in which a higher average represents better adaptation.

## 3. Data Analysis

Firstly, we validated the measures used to proceed with the following analysis. Factorial exploratory and confirmatory analyses were conducted using IBM SPSS Statistics (Version 27.0, IBM Corp, Armonk, NY, USA) [28] and Jamovi (Version 1.6, The Jamovi Project, Sidney, Australia) [29], respectively. For internal consistency analysis, we considered alphas above 0.90 as excellent, above 0.80 as very good, and above 0.70 as acceptable. Being in the context of latent variables, values between 0.60 and 0.70 were tolerated [30,31]. For data descriptive statistics and mean comparisons, IBM SPSS Statistics (Version 27.0, IBM Corp, Armonk, NY, USA) for Windows [28] was used. Mplus (8th Edition, Muthén & Muthén, Los Angeles, CA, USA) [32] was used to test invariance measurement and for SEM. For global evaluation of model fit we considered the chi-square test, comparative fit index (CFI), Tucker–Lewis index (TLI), and the root mean square error of approximation (RMSEA). Because chi-square is a sample-size sensitive test, for decision-making we considered CFI, TLI, and RMSEA. An acceptable fit was assumed when CFI and TLI showed values between 0.90 and 0.95, and a good fit was assumed with values above 0.95 [30,33–35]. For RMSEA, values below 0.05 [36] or 0.06 [34] were considered representative of good fit, and values between 0.05 and 0.10 were considered representative of acceptable fit [36–38].

Secondly, we tested a measurement model for both the 1st and 2nd years of data collection. Finally, we tested measurement invariance to ensure that the instruments functioned in a similar way between groups (group invariance) and different points of time (longitudinal invariance). To assess measurement invariance, traditionally we would use the difference in chi-square test to decide whether the data fit the model. However, as this test is sensitive to sample size, we used CFI and RMSEA to make final decisions. More specifically, we followed Chen’s recommendations [39] of assuming invariance when differential values between models (configural, metric and scalar) are not higher than 0.01 for CFI and 0.015 for RMSEA. The main analysis was made firstly by testing, using SEM, an overall model of the relationships between all latent variables and then by testing a mediation model.

## 4. Results

### 4.1. Instruments Validation

Exploratory (EFA) and confirmatory (CFA) factor analysis were conducted to get the final AEQ, SEHES, and AHEQ. The initial AEQ scale had 42 items with a shortened version being used later. The final AEQ scale considered for the analysis had 17 items. As for SEHES, the applied scale had a total of 20 items, and the final scale used for analysis had 13 items. Finally, AHEQ was applied using its shortened version with 40 items, and after our preliminary analysis, a total 36 items were considered.

Reliability and fit indexes for each scale in both years are presented in Table 1, revealing satisfactory model fit and reliability.

**Table 1.** Reliability and fit indexes for AEQ, SEHES, and AHEQ.

		$\chi^2$	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA [90% CI]	$\alpha$
AEQ	1st Year	505.28	104	<0.001	0.94	0.92	0.10 [0.095, 0.113]	0.85
	2nd Year	608.83	104	<0.001	0.97	0.95	0.10 [0.089, 0.104]	0.89
SEHES	1st Year	253.94	62	<0.001	0.96	0.95	0.09 [0.077, 0.099]	0.88
	2nd Year	282.09	62	<0.001	0.96	0.95	0.08 [0.073, 0.092]	0.89
AHEQ	1st Year	2101.41	584	<0.001	0.92	0.91	0.08 [0.072, 0.079]	0.89
	2nd Year	2595.02	584	<0.001	0.92	0.92	0.08 [0.078, 0.084]	0.90

Note: *df* = Degrees of freedom; TLI = Tucker-Lewis index; CFI = Comparative fit index; RMSEA = Root mean square error of approximation; CI = Confidence interval. For AEQ, Cronbach alpha for each factor ranged between 0.71 and 0.89 (with exception of political involvement and citizenship in the 1st year, in which  $\alpha = 0.57$ ); For SEHES, Cronbach alpha for each factor ranged between 0.78 and 0.82. For AHEQ, Cronbach alpha for each factor ranged between 0.72 and 0.91.

### 4.2. Descriptive Analysis

Table 2 shows means for total scores of all scales and their factors. Paired sample *t*-tests were conducted to find mean differences between the 1st and 2nd years of college.

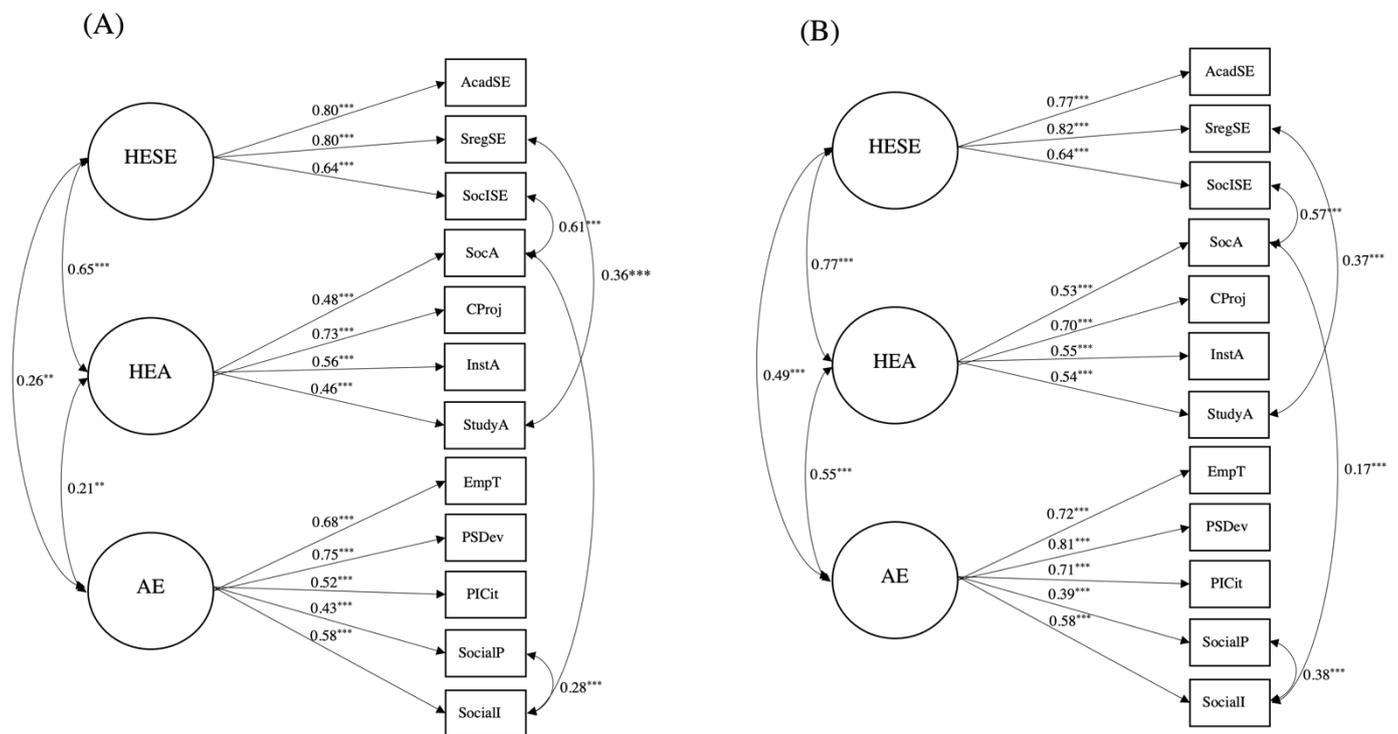
**Table 2.** Descriptive Analysis for AEQ, SEHES and AHEQ.

	<i>n</i>	1st Year M (SD)	2nd Year M (SD)	<i>t</i>
<b>Academic Expectations</b>	354	4.83 (0.64)	4.79 (0.73)	0.14
Employment training		5.58 (0.55)	5.39 (0.74)	4.50 ***
Personal and social development		5.30 (0.71)	5.28 (0.74)	0.43
Student mobility		4.34 (1.31)	4.37 (1.32)	0.06
Political involvement and citizenship		5.30 (0.70)	5.33 (0.74)	−1.16
Social pressure		3.95 (1.31)	3.98 (1.41)	−0.27
Social interaction		5.01 (0.98)	4.84 (1.05)	3.49 ***
<b>HE Self-efficacy</b>	354	4.83 (0.57)	4.81 (0.70)	0.17
Academic self-efficacy		4.56 (0.68)	4.58 (0.74)	0.86
Self-efficacy for studying regulation		4.77 (0.73)	4.83 (0.74)	0.31
Self-efficacy for social interaction		4.75 (0.82)	4.75 (0.88)	0.66
<b>HE Adaptation</b>	402	3.84 (0.40)	3.71 (0.54)	6.73 ***
Personal and emotional adaptation		2.82 (0.88)	2.90 (0.95)	−0.76
Social adaptation		4.09 (0.57)	4.09 (0.60)	0.23
Career project		4.25 (0.54)	4.16 (0.59)	4.73 ***
Institutional adaptation		3.97 (0.49)	3.59 (0.56)	15.03 ***
Study adaptation		3.62 (0.63)	3.54 (0.72)	2.70 **

Note: \*\*  $p < 0.05$ , two tailed. \*\*\*  $p < 0.001$ , two tailed; expressions in bold refer to higher-order latent variables inferred by the latent scale factors; expressions not in bold refer to latent scale factors

### 4.3. Measurement Model

A measurement model was tested for both the 1st and the 2nd years, resorting to MPlus (8th Edition, Muthén & Muthén, Los Angeles, CA, USA) and using MLE (maximum likelihood estimation)—see Figure 1. Controlling for systematic measurement error, we followed the correlated uniqueness method [40,41], where correlations between identical items from expectations, self-efficacy, and adaptation at different measurement times were allowed. After adjustments, we obtained a measurement model in which new correlations, suggested by modification indices and were theoretically meaningful were added (see Figure 1). Two factors were excluded from the model for not contributing to (or having a negative impact on) model fit: personal and emotional adaptation and expectations for student mobility. The model had an acceptable fit for both the 1st year (CFI = 0.94, TLI = 0.91 and RMSEA = 0.05) and the 2nd year (CFI = 0.93, TLI = 0.90, RMSEA = 0.07) of data collection.



**Figure 1.** Measurement Model for First (A) and Second Year (B) of HE; Note: \*\*  $p < 0.05$ , \*\*\*  $p < 0.001$ ; HESE: Higher Education Self-efficacy; HEA: Adaptation to Higher Education; AE: Academic Expectations; AcadSE: Academic Self-efficacy; SregSE: Self-efficacy for Study Regulation; SocISE: Self-efficacy for Social Interaction; SocA: Social Adaptation; CProj: Career Project; InstA: Institutional Adaptation; StudyA: Study Adaptation; EmpT: Employment Training; PSDev: Personal and Social Development; PICit: Political Involvement and Citizenship; SocialP: Social Pressure; SocialI: Social Interaction.

### 4.4. Measurement Invariance

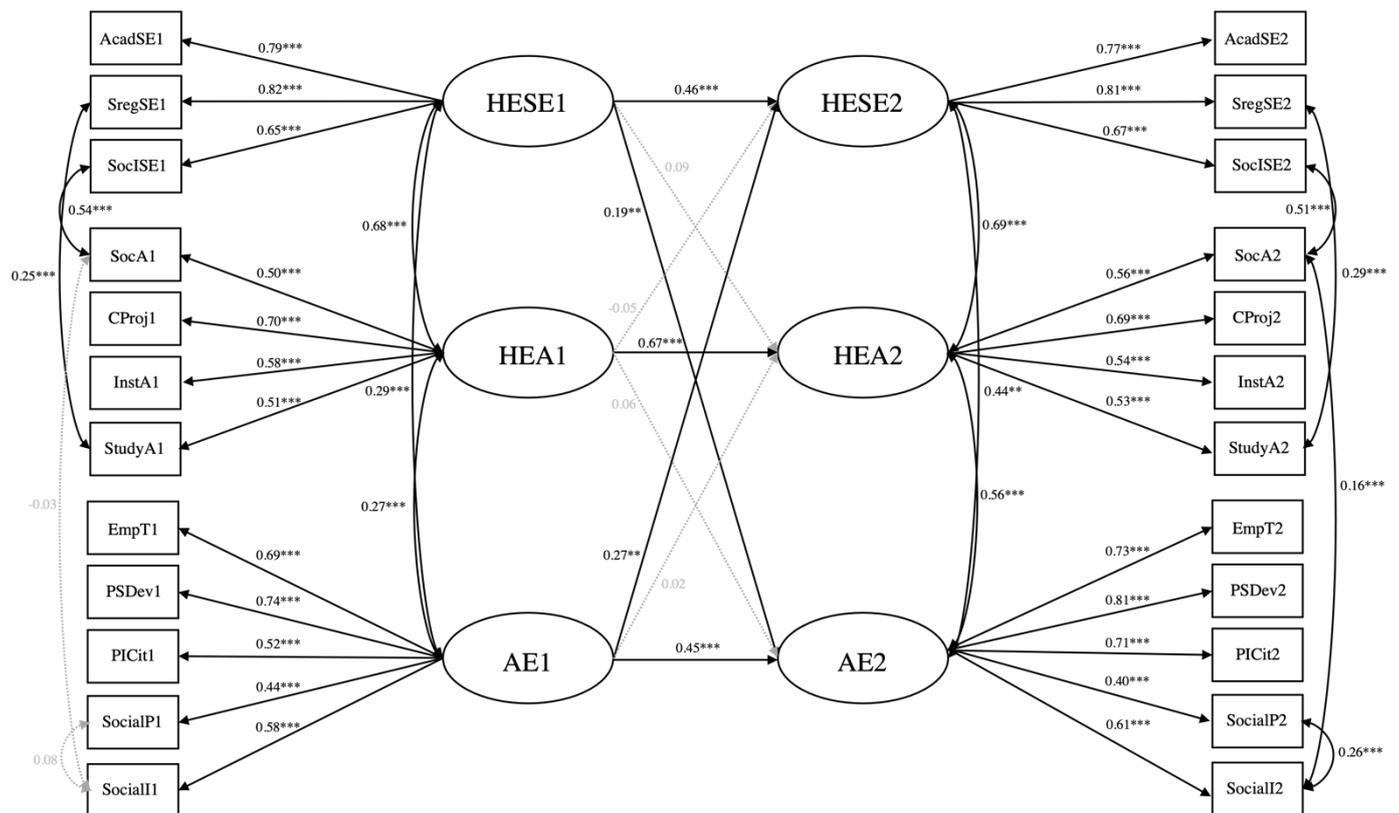
Group invariance was assessed and metric invariance was confirmed for the assessment of academic expectations ( $\Delta CFI = 0.001$ ;  $\Delta RMSEA = 0.008$ ), self-efficacy ( $\Delta CFI = 0.003$ ;  $\Delta RMSEA = 0.031$ —here, it was only observed for the CFI indicator), and HE adaptation ( $\Delta CFI = 0.007$ ;  $\Delta RMSEA = 0.001$ ). Scalar invariance was not observed for measures except for HE adaptation ( $\Delta CFI = 0.010$ ;  $\Delta RMSEA = 0.002$ ).

Longitudinal invariance was assessed and metric invariance was confirmed for the assessment of academic expectations ( $\Delta CFI = 0.003$ ;  $\Delta RMSEA = 0.006$ ), self-efficacy ( $\Delta CFI = 0.002$ ;  $\Delta RMSEA = 0.008$ ), and HE adaptation ( $\Delta CFI = 0.002$ ;  $\Delta RMSEA = 0.007$ ). Scalar invariance was only observed for self-efficacy in HE ( $\Delta CFI = 0.003$ ;  $\Delta RMSEA = 0.005$ ).

For the goals of this study’s analyses, which are based on correlation interpretation and the analyses of coefficients in SEM, only metric invariance was necessary.

4.5. Relationship between Variables

We tested a model with predictive relationships between latent variables of 1st year and of 2nd year. The model (Figure 2) showed an adequate fit (CFI = 0.92; TLI = 0.90; RMSEA = 0.05). We followed the correlated uniqueness method [40,41] allowing for correlations between identical items from academic expectations, self-efficacy, and adaptation at different measurement times. Additionally, following the modification indices suggested and allowing for those which were theoretically meaningful, we correlated four pairs of variables (see Figure 2). The correlations for this model are presented in Table 3. Results are further examined in the discussion section.



**Figure 2.** Relationship Between Variables; Note: \*\*  $p < 0.05$ , \*\*\*  $p < 0.001$ ; Grey lines refer to non-significant correlations, while black lines refer to significant correlations; HESE: Higher Education Self-efficacy; HEA: Higher Education Adaptation; AE: Academic Expectations; AcadSE: Academic Self-efficacy; SregSE: Self-efficacy for Study Regulation; SocISE: Self-efficacy for Social Interaction; SocA: Social Adaptation; CProj: Career Project; InstA: Institutional Adaptation; StudyA: Study Adaptation; EmpT: Employment Training; PSDev: Personal and Social Development; PICit: Political Involvement and Citizenship; SocialP: Social Pressure; SocialI: Social Interaction; the number 1 and 2 after the variable label refers to the first and second year of data collection.

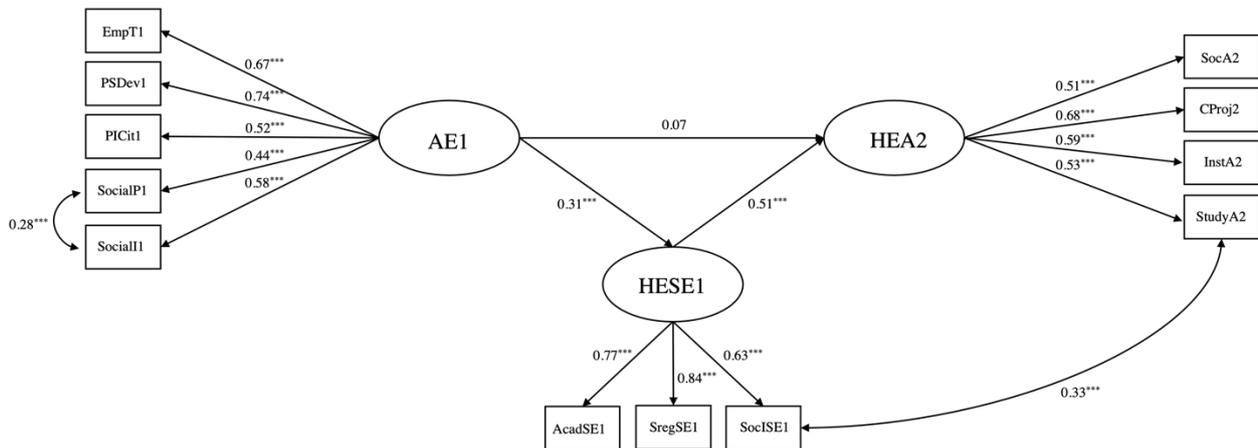
**Table 3.** Correlation between observed variables in the model of relationships between variables.

	AcadSE1	SregSE1	SocISE1	SocA1	CProj1	InstA1	StudyA1	EmpT1	PSDev1	PICit1	SocialP1	SocialI1	AcadSE2	SregSE2	SocISE2	SocA2	CProj2	InstA2	StudyA2	EmpT2	PSDev2	PICit2	SocialP2	SocialI2	
AcadSE1	1.000																								
SregSE1	0.632 ***	1.000																							
SocISE1	0.510 ***	0.521 ***	1.000																						
SocA1	0.259 ***	0.224 ***	0.601 ***	1.000																					
CProj1	0.468 ***	0.383 ***	0.242 ***	0.316 ***	1.000																				
InstA1	0.221 ***	0.289 ***	0.166 ***	0.144 ***	0.347 ***	1.000																			
StudyA1	0.245 ***	0.435 ***	0.169 ***	0.154 ***	0.144 ***	0.308 ***	1.000																		
EmpT1	0.032 **	0.176 **	0.154 **	0.103 **	0.067 **	0.129 **	0.008 **	1.000																	
PSDev1	0.137 **	0.174 **	0.176 **	0.102 **	0.163 **	0.259 ***	0.001 ***	0.466 ***	1.000																
PICit1	0.145 **	0.271 ***	0.186 **	0.092 **	0.171 **	0.209 ***	0.134 **	0.348 ***	0.435 ***	1.000															
SocialP1	−0.136 **	0.011	0.114 *	0.084 **	−0.142 **	0.098	−0.059	0.358 ***	0.344 ***	0.098 *	1.000														
SocialI1	−0.053	0.036	0.213 ***	0.162 **	−0.013	0.087	−0.045	0.455 ***	0.429 ***	0.218 ***	0.445 ***	1.000													
AcadSE2	0.514 ***	0.410 ***	0.254 ***	0.170 ***	0.303 ***	0.216 ***	0.197 ***	0.303 ***	0.015	0.128 **	0.199 ***	−0.020	−0.020	1.000											
SregSE2	0.375 ***	0.492 ***	0.243 ***	0.177 ***	0.288 ***	0.270 ***	0.302 ***	0.090 *	0.104 **	0.157 **	0.012	0.080	0.157 **	1.000											
SocISE2	0.297 ***	0.375 ***	0.492 ***	0.367 ***	0.218 ***	0.248 ***	0.151 ***	0.044	0.126 **	0.141 **	0.006	**	0.006	1.000											
SocA2	0.213 ***	0.265 ***	0.357 ***	0.498 ***	0.237 ***	0.261 ***	0.247 ***	−0.018	0.080	0.117 **	0.022	**	0.119	0.329 ***	0.361 ***	0.669 ***	1.000								
CProj2	0.351 ***	0.341 ***	0.150 ***	0.147 **	0.657 ***	0.261 ***	0.310 ***	0.098 *	0.194 ***	0.243 ***	0.068	0.073	0.456 ***	0.399 ***	0.279 ***	0.302 ***	1.000								
InstA2	0.178 ***	0.237 ***	0.105 **	0.167 ***	0.258 ***	0.532 ***	0.219 ***	0.008	0.137 **	0.099 *	0.052	0.051	0.297 ***	0.299 ***	0.311 ***	0.365 ***	0.393 ***	1.000							
StudyA2	0.143 **	0.271 ***	0.066	0.086 *	0.224 ***	0.286 ***	0.575 ***	0.024	0.110 **	0.110	0.086	0.027	0.361 ***	0.522 ***	0.262 ***	0.243 ***	0.370 ***	0.292 ***	1.000						
EmpT2	0.213 ***	0.270 ***	0.210 ***	0.103 **	0.189 ***	0.149 **	0.144 **	0.319 ***	0.241 ***	0.144 **	0.165 **	0.174 **	0.280 ***	0.389 ***	0.282 ***	0.229 ***	0.361 ***	0.199 ***	0.246 ***	1.000					
PSDev2	0.167 ***	0.215 ***	0.163 ***	0.135 **	0.149 **	0.150 **	0.089 *	0.230 ***	0.339 ***	0.204 **	0.240 ***	0.287 ***	0.185 **	0.254 ***	0.259 ***	0.225 ***	0.278 ***	0.206 ***	0.145 ***	0.578 ***	1.000				
PICit2	0.290 ***	0.277 ***	0.173 ***	0.100 **	0.220 ***	0.226 ***	0.157 **	0.197 ***	0.240 ***	0.371 ***	0.115 **	0.110 **	0.351 ***	0.331 ***	0.282 ***	0.233 ***	0.433 ***	0.246 ***	0.243 ***	0.515 ***	0.585 ***	1.000			
SocialP2	−0.093 *	0.040	0.065	0.051	−0.060	0.051	0.024	0.258 ***	0.245 ***	0.092 *	0.591 ***	0.409 ***	0.028	0.066	0.054	0.066	0.071	0.053	0.093 **	0.309 ***	0.373 ***	0.217 ***	1.000		
SocialI2	0.091 *	0.173 ***	0.232 ***	0.190 ***	0.049	0.128 **	0.034	0.279 ***	0.295 ***	0.203 ***	0.305 ***	0.556 ***	0.140 ***	0.234 ***	0.361 ***	0.373 ***	0.155 ***	0.207 ***	0.137 **	0.393 ***	0.547 ***	0.330 ***	0.509 ***	1.000	

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.001$ ;  $n$  varied between 237 and 402.

#### 4.6. Mediation Model

A mediation model where the predictive relationship between academic expectations in the beginning of HE and HE adaptation in the 2nd year was mediated by self-efficacy in the 1st year, was tested, as can be seen in Figure 3. The model showed acceptable fit (CFI = 0.90, TLI = 0.90; RMSEA = 0.06). Results suggest the existence of a full mediation, as can be seen in Table 4. There was not a direct effect of academic expectations in HE adaptation, but there was an effect which is mediated by self-efficacy.



**Figure 3.** Mediation Model. \*\*\*  $p < 0.001$ , Note: AE: Academic Expectations; HESE: Higher Education Self-efficacy; HEA: Higher Education Adaptation; EmpT: Employment Training; PSDev: Personal and Social Development; PICit: Political Involvement and Citizenship; SocialP: Social Pressure; SocialI: Social Interaction; AcadSE: Academic Self-efficacy; SregSE: Self-efficacy for Study Regulation; SocISE: Self-efficacy for Social Interaction; SocA: Social Adaptation; CProj: Career Project; InstA: Institutional Adaptation; StudyA: Study Adaptation; the number 1 and 2 after the variable label refers to the first and second year of data collection.

**Table 4.** Standardized results for the mediated effect of self-efficacy.

	Total Effect	95% CI		Direct Effect	95% CI		Indirect Effect	95% CI	
		Lower Bound 2.5%	Upper Bound 2.5%		Lower Bound 2.5%	Upper Bound 2.5%		Lower Bound 2.5%	Upper Bound 2.5%
Mediation Effect	0.226	0.065	0.376	0.066	−0.115	0.225	0.160	0.064	0.286

#### 5. Discussion and Future Directions

The main goal of this study was to characterize the relationship between academic expectations, self-efficacy, and adaptation to HE. After scale validation and testing measurement model and invariance, we tested and adapted two models—one representing the general relationship among the latent variables for two years and another testing the mediation role of self-efficacy in the relationship between academic expectations and adaptation to HE.

In line with previous research (e.g., [23]), averages for academic expectations were high and the higher average was for employability training, both in the 1st and 2nd years. However, social interaction did not stand out (H1). By testing the measurement model, we observed that some correlations between factors contributed in a significant way for a good model fit. Overall, these suggest that both social and study regulation dimensions are particularly important for the relationship between our latent variables. This is theoretically consistent with findings from Braxton and collaborators [42] in which

adaptation particularly benefited from the concretization of social and more career and study-oriented expectations.

The model of relationship between variables shows us how academic expectations, self-efficacy, and adaptation correlated with each other during the first two years of college (H3), noting that these correlations increased in intensity from one year to the other. Adaptation in the 1st year only had a predictive relationship with adaptation in the 2nd year, and adaptation in the 2nd year was only predicted by adaptation in the 1st year—even though we would expect that expectations in the 1st year would show a direct predictive relationship with adaptation in the 2nd year [9,13]. Both academic expectations and self-efficacy mutually influenced each other from the 1st to 2nd year—that is, academic expectations and self-efficacy in the 1st year had significant predictive relationships with both expectations and self-efficacy in the 2nd year. Considering Bandura's theory, we could speculate having high expectations could lead to higher self-efficacy, which would result in more positive academic behaviors (e.g., better study strategies, better social involvement, and so on), as shown by Vantieghem and collaborators [18] and Schnell and collaborators [19], and that, therefore, could lead to even better expectations. We can also observe that latent variables always correlated significantly with each other in both years. Correlation between self-efficacy and adaptation to HE was particularly similar and strong in both years, which reveals consistency in this relationship. In its turn, the relationship between academic expectations and both self-efficacy and adaptation becomes stronger from the 1st to 2nd year. This could be justified by an adjustment of expectations from the 1st to 2nd year, due to unrealistic expectations at the entrance to HE and posterior adjustment according to lived experiences. Another interesting result is that the correlations between expectations for social interaction and both expectations for social pressure and self-efficacy for social interaction only become significant in the 2nd year, which could be explained by expectations in the 1st year having been measured in the first month in college, at which point there has not been enough time to get acquainted with the social reality of the academic context. Studies on the relationship between self-efficacy and both academic expectations and adaptation to HE are still scarce, and future research should deepen it. Our results suggest a strong correlation between self-efficacy and academic expectations, with highlighted relevance of the social factor. Confirmation of these results among other samples are important to obtain.

When looking for evidence for H2 (that we expected HE adaptation to be positively influenced by academic expectations) in our first model, one might think that this had not been confirmed by our data—at least longitudinally. However, the following mediation model suggests otherwise. For our mediation hypotheses, a model was tested where self-efficacy mediated the relationship between academic expectations and adaptation to HE. Results suggest a full mediation (a significant indirect and total effect, and non-significant direct effect) (H4). Therefore, academic expectations have an influence on adaptation in HE but only through its positive influence on self-efficacy. This could explain the absence of a direct predictive relationship between expectations in the 1st year and adaptation in the 2nd year, in the main model, that we expected, as suggested by other studies (e.g., [9,13]). For the relationship between self-efficacy and expectations, literature has not yet given us consistent explanations, but these results are consistent with the mutual effect observed on the model of relationship between variables. Additionally, since expectations are partially a consequence of previous experiences [3] these, if positive, could also represent the basis of higher confidence on one's own abilities (i.e., self-efficacy). The relationship between self-efficacy and adaptation in HE can be explained by the idea that people with high self-efficacy work harder and invest more resources to reach their goals [8]. In addition, Bandura mentions that someone can believe that a certain behavior will lead to a certain consequence, but for that belief to be benefic for behavior change, there needs to be high self-efficacy for that same behavior. In this sense, the way academic expectations influence self-efficacy is worth exploring in future research.

Regarding expectations, we would suggest the introduction of an expectations concretization variable in the mediation model, possibly as a mediator with suppressive effect. Research shows that when initial expectations are not fulfilled or do not correspond to reality, there is a risk of disappointment and less academic investment. This could have a negative impact on adaptation to HE, success, and eventually lead to drop out [3]. Another possibility would be to resort to student profile analysis suggested by Soares and Almeida [15] in which students are divided into profiles, depending on their relationship between expectations and actual experiences. We could test the mediation model for different groups and assess differences. Furthermore, we suggest testing the mediation model for specific areas of academic experiences, such as the social area, which seems to be more relevant for the relationship between these variables.

As we mentioned before, adaptation to HE is a very broad concept, and its conceptualization is not well defined. Some would consider that students are well adapted when they have good academic achievement. However, we argue that that is only a part of adaptation, which has a lot of different areas defining it (e.g., social, institutional, etc.). Therefore, we suggest the inclusion of academic achievement in the model of relationships between variables, which could help to differentiate between adaptation and achievement. According to previous research, we would expect a positive relationship between academic achievement and the remaining model variables (e.g., [17,22]).

#### *Limitations*

This study resorted to self-reported measures, which are subjected to social desirability. In addition, the instruments used had not been fully validated previously, but efforts were made to overcome this problem, with a validation and posterior analysis using the suggested scale's structure. Another limitation is our limited sample, since all participants are from the same HE institution and mainly psychology female students. Further research should test if this model is adequate for a broader sample, from different institutions (both public and private) and different areas of studies. Interpretation of this model's results should consider that the conceptualization of adaptation to HE is yet not well understood—the instrument used in this study is one that derives from an academic experiences scale, which is not necessarily the same concept. Further exploration of the concept is needed.

#### **6. Conclusions**

This study allowed for starting to fill gaps in the literature about adaptation to HE. Firstly, it contributes with longitudinal data, hard to get for its methodological complexity. Secondly, it uses SEM, which is a stronger approach when compared to classic statistical techniques. It is based on a theoretical framework that is established a priori and is therefore a confirmatory (although, not exclusively) type of analysis [30]. This study comes from a recent range of research which has been studying expectations, self-efficacy, and adaptation to HE in a considerable isolated way, by focusing solely on one of these variables or the relationship between two. Based on this research, SEM presents itself as an alternative way for a more holistic understanding of the relationship between academic expectations and self-efficacy on adaptation to HE. From all conclusions and results, we highlight a model that correlates academic expectations, self-efficacy, and adaptation to HE, with social dimensions presenting a particular relevance and potential for further studying. We also highlight the fully mediating role of self-efficacy in the relationship between academic expectations and adaptation to HE, matching Bandura's socio cognitive theory. Considering the limitations and suggestions presented, we open way for the development of studies that can deepen the relationships between the variables presented in this study. This area is particularly important so that HE institutions can adapt the experiences they offer students, facilitating better adaptation, as we know that expectations are indeed influenced by the information given by the HE institution itself [4]. This investment has the potential to minimize college dropout by benefitting students' adaptation, providing information on how and in what dimensions institutions should make efforts to either adjust the way they

present themselves (e.g., making sure a realistic view of academic experience is displayed to future students) or to try to monitor how students' expectations are being met during their first year of college. In other words, this knowledge could help HE institutions to both make efforts to match students' expectations to real experiences and to identify those who have their expectations and experiences mismatched, making it possible to intervene so that negative consequences (e.g., poor achievement) are avoided.

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