

Transition to higher education and assessment: a one year longitudinal study

Transición a educación superior y evaluación: un estudio longitudinal anual

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ABSTRACT

Higher education students need to be more autonomous when they change to this new learning environment. This is one of the reasons why many students find the transition to higher education a challenging experience, also shown by the high dropout rate in the first year of higher education. Researchers in this area have pointed out different academic, sociodemographic, psychological, and sociocultural variables that may explain students' adaptation to higher education. In this line of investigation, there have been calls for more longitudinal research to understand how students adapt to their arrival at the university. In this longitudinal study, 148 participants filled out a learning diary/survey on a weekly and bi-weekly basis during their first university year, reporting their satisfaction, challenges,

emotions, motivation, and learning strategies. Three main conclusions can be extracted from the data. First, satisfaction levels and challenges fluctuated throughout the year, showing that students experience their transition through different phases and that there are variations within the year. Second, assessment activities (e.g., exams) are the major emotional and motivational triggers decreasing positive emotions and increasing negative emotions. And third, participants reported the use of strategies mostly for processing or memorizing the content in contrast to an extremely low number of more advanced self-regulatory strategies. We recommend some actions to improve students' transition to higher education, such as reconsidering assessment practices and designing intervention programs to help students in this new environment.

Keywords: transition to higher education, higher education adaptation, classroom assessment, self-regulated learning, emotion and motivation

RESUMEN

La formación universitaria exige a los estudiantes ser más autónomos y cambiar a un nuevo entorno de aprendizaje. Esta es una de las razones por la que muchos estudiantes viven una experiencia desafiante en esta etapa y hay altas tasas de abandono en el primer año de estudios. Distintas investigaciones han señalado variables académicas, sociodemográficas, psicológicas y socioculturales que pueden explicar la adaptación a este entorno. En estas, se ha indicado la importancia de hacer más estudios longitudinales. En este estudio longitudinal, 148 participantes rellenaron un diario de aprendizaje/encuesta semanal y bisemanalmente durante su primer año de universidad, reportando su satisfacción, los retos percibidos, y la evolución de sus emociones, motivación y estrategias de aprendizaje. Se extraen tres conclusiones principales de los datos. Primero, los niveles de satisfacción y los retos reportados fluctuaron a lo largo del curso, mostrando distintas fases por las que pasan los estudiantes. Segundo, las actividades de evaluación (e.g., exámenes) fueron el principal factor que producía una reducción de valores positivos y un incremento de valores negativos en la valencia emocional. Tercero, los participantes reportaron estrategias de adquisición y procesamiento de la información (e.g., elaborar resúmenes), en contraste con un bajo reporte de estrategias de autorregulación, con una posible influencia de las prácticas de evaluación. El artículo finaliza recomendando algunas acciones para mejorar la transición a la educación superior, por ejemplo, con actividades de evaluación más formativas y el diseño de programas de intervención para ayudar al alumnado a organizar su actividad en el nuevo entorno.

Palabras clave: transición a educación superior, adaptación a educación superior, evaluación en clase, autorregulación del aprendizaje, emoción y motivación

INTRODUCTION

Research shows that the transition to higher education is challenging for students as proven by the fact that the first university academic year has higher dropout rates than the rest of the years (Tinto, 2012). Though dropout varies among countries, for instance, 20% in the USA and 33% in The Netherlands (van Herpen et al., 2017), numbers are problematic worldwide and there are high percentages of freshmen that struggle. Considering that higher education dropout has a significant social and economic impact, researchers have explored several variables that might impact students' academic success in their first academic year. This negative impact is probably caused by the considerable differences between secondary and higher education environments. Therefore, understanding what happens in the first university year is key.

Research in this area has significantly focused on the analysis of the main transition processes (e.g., motivation) and the individual development of the students in their adaptation to higher education (Noyes et al., 2017). Though there is a strong vein of research on how students adapt to their first university year (e.g., Lowe & Cook, 2003), there was a need for longitudinal studies exploring the development of students in aspects such as: satisfaction, challenges, emotions, learning strategies use, and so on (e.g., Niculescu, 2015), while exploring the effects of the assessment practices on such variables (Panadero et al., 2019). This was precisely the aim of this study: conducting a longitudinal study of a sample of freshmen during their first year at the university.

Transition to university

When students face the transition to higher education, they must adapt to a new social and institutional environment, sometimes even changing the city where they live. In addition, the learning contexts in secondary education and university present remarkable differences, that range from classroom size and different teaching styles to a higher demand for autonomous learning and individual responsibility or different assessment practices (Christie et al., 2013; Coertjens, Brahm, et al., 2017); leading to an educational context with less supervision.

In order to understand the complexity of the transition, researchers in this area have called attention to different explanatory variables, from academic skills and previous grades (Wagner & Brahm, 2017), to cognitive, emotional, and motivational regulatory variables like perceived control (Stupnisky et al., 2012), fear of failure (Wagner & Brahm, 2017), self-efficacy (Kyndt et al., 2019), social integration (Hillman, 2005), and assessment practices (Thomas et al., 2019; Zhou et al., 2020).

As some authors have argued, the transition to higher education should be understood as a process, starting in the later academic years of secondary education and finishing after a period of adjustment to the new university environment (Coertjens, Brahm, et al., 2017; Niculescu, 2015). Importantly, to reach a better understanding of the transition as a process, it is crucial to carry out longitudinal studies to follow the same students during their first year in higher education (Niculescu, 2015). In this line of work, there have been studies showing the evolution in variables like learning strategies (Coertjens, Donche, et al., 2017) and motivation and self-efficacy (Kyndt et al., 2019). Nevertheless, there is still room for exploring variables such as satisfaction, academic challenges, or the evolution of emotions during the first year, while at the same time amplifying our knowledge of the use of learning strategies and motivation. Importantly and additionally, an exploration of the effects of assessment practices is needed, as this shapes the instructional setting at the university quite significantly (e.g., Ellison & Jones, 2019; Lipnevich et al., 2021; Panadero et al., 2019). In this study, we explored the evolution of several of these variables through the first year of higher education.

Firstly, regarding satisfaction, research shows that students who feel socially (Hillman, 2005) and academically integrated (Tam, 2002) are more likely to finish their studies. Moreover, higher satisfaction translates into a better chance of recommending the institution to future students (Delaney, 2004). An important factor underlying satisfaction is the balance between expectations and their academic experience (Thomas & Quinn, 2007), as unrealistic expectations can lead to lower grades (Smith & Wertlieb, 2005). In summary, satisfaction is a key variable for a successful transition, but there is still a need for longitudinal and more detailed data about the evolution of satisfaction and what factors influence it to increase students' academic success.

Secondly, higher education is a demanding educational context with several challenges to students' abilities (e.g., Koivuniemi et al., 2017), such as managing their own time, creating study habits, adapting rapidly and willingly to changes regarding a new learning environment (Krause & Coates, 2008), or inaccuracies in their first impressions about the university (Yorke & Longden, 2007). When facing different challenges, students should use their available repertoire of skills, modifying their cognitive, metacognitive, motivational, and emotional reactions, and/or increasing their effort to adapt to the demands of the new context. However, research shows that university students are not as strategic as might have been expected (Koivuniemi et al., 2017). Therefore, we need to amplify our knowledge of what are the main challenges and how these evolve during the first academic year.

Thirdly, emotional and motivational skills have been associated with successful adaptations to higher education (Richardson et al., 2012). As in other educational settings, emotional skills are essential to cope and to help students engage in learning

(Pekrun et al., 2002) and are an inherent central element of the transition (Quinn, 2010). This is so because learning-related emotions like enjoyment, anxiety, boredom, and hopelessness play a crucial role in students' adaptation to university (Niculescu, 2015). Importantly, these emotions have different valence, which is defined as the value associated with a stimulus as expressed on a continuum from pleasant to unpleasant or from attractive to aversive (American Psychological Association, n.d.), and as shown by the research of Pekrun et al. (2002) in educational settings. In addition, motivational strategies are effective not only because of their enhancement of emotional regulation (Estévez et al., 2016), but even more importantly in order to persist in the students' studies (Brahm et al., 2017). Therefore, we included the exploration of emotions and motivation in our study.

Finally, the evolution of the use of learning strategies in the transition shows a positive change or "transitional jump" to a deeper approach to learning, an increase of self-regulated learning while, at the same time, a growth in the use of strategies for memorizing (Coertjens, Donche, et al., 2017). This is congruent with the idea that higher education demands becoming an independent learner to deal with a new learning environment (Harvey et al., 2006) while also requiring more content knowledge. Nevertheless, surface approaches are still widely reported in higher education (Rovers et al., 2018). In fact, it has been claimed that one reason for dropout is that students are not prepared because of their intense use of memorizing and surface approaches to learning accompanied by a lack of regulation (Lowe & Cook, 2003). Thus, we also explored the evolution of learning strategies.

Aim and research questions

This study aim was to explore the effects of the transition to higher education following students during their first academic year in several variables organized around the following research questions (RQ):

- RQ1: What is the trajectory of students' satisfaction in the transition to higher education? What variables do students report in relation to their satisfaction?
- RQ2: What are the main academic challenges in the transition to higher education?
- RQ3: What are the emotional and motivational level trajectories and the main triggers?
- RQ4: What are the main learning strategies used and their trajectories?

METHOD

Sample

One hundred and forty-eight students volunteered to participate. Ninety-two were women (62.16%). The vast majority of the participants were 18 years old ($n=127$) with some being 17 ($n=11$) and others 19 ($n=10$). Students belonged to 10 different high schools in Madrid and, after passing the university entry exam, they were distributed among the following academic divisions: Arts & Humanities ($n=30$), Hard Sciences ($n=26$), Health Sciences ($n=33$), Social Sciences ($n=35$), and Engineering and Architecture ($n=24$). Students periodically filled in a learning diary and a total of 2,288 diaries were collected (1,310 in the first semester and 978 in the second).

This study suffered experimental attrition. Table 1 presents the number of participants. For overcoming attrition, two actions were taken. First, as informed to all participants at the beginning of the study, students who had only missed two diaries were offered a 50€ voucher in the faculty bookshop to buy any book they liked. Interestingly, a high number of the students that could have received the voucher declined it, 35 out of 50. We did not identify differences in the characteristics of the students that accepted the voucher and the ones that did not. Secondly, participants interested in following their progress throughout the data collection could, upon request, receive a summary of their trajectories and diaries. Fifty-five participants requested it. These actions seemed to have a positive effect as 125 participants replied to some of the diaries.

Table 1
Number of participants in the different measurements

Delivering	First open questions	1 st semester diaries	2 nd semester diaries
All	148	79	45
Missing 1 to 3 diaries	-	59	80
Missing 4 or more diaries	-	10	23
Total	148	148	148

Procedure

During the second half of the previous academic year, the first author visited eight high schools in different parts of Madrid, inviting students in their final year of the university preparatory level to participate in a one-year-long study during their first university year. At that point, the participants needed to (a) voluntarily participate by signing an agreement if they were over 18 (legal adult age) or (b) bring a paternal authorization. Participants provided their contact email within the authorization and agreement. Afterwards, they took their official university entry exam, chose their major accordingly, and went on summer vacation. These participants were encouraged to invite friends from other high schools that might have been interested. Five participants from two other high schools joined following the same ethical procedure.

In the first week of their universities official opening (2018-19), participants were contacted again to check whether they had entered the university and in what major. Then they provided some background information. Subsequently, they filled out a learning diary asking them about different facets of their transition to the university with the following frequency: weekly during the first month, bi-weekly during the rest of the first semester, and three-weekly during the second semester (vacation weeks did not count) for a total of 18 times (10 during the first semester and 8 in the second semester).

Instrument

Learning diary

This instrument was created to conduct the study. Some questions varied during the academic year in order to reflect on new aspects or stop asking about others that were no longer relevant. The questions that are explored in this study are: satisfaction with the university (10 points rating scale 1 to 10) and reasons for that satisfaction or lack of it (open question); main challenges experienced (open question); experienced emotions (10 points rating scale 1 to 10)—namely joy, hope, pride, relief, anxiety, anger, shame, sadness, and boredom, along with an open question about the main factors triggering those emotions; learning strategies (open question); motivation and strategies to increase it (10 points rating scale and open question); presence and number of assessment activities (yes/no and open question).

Data analyses

Two types of data were collected: qualitative and quantitative. Regarding the first, we analyzed qualitative data using content analysis of the learning diary open questions. This data was analyzed using a code created via inter-judges' agreement between two raters. The two of them analyzed and created categories independently, then they discussed the categories and agreed upon which ones to use. After, both raters analyzed 10 cases using such categories with the vast majority being above the standard threshold of .80 agreement using Krippendorff's. The few categories that did not reach that level were discussed. Then, another 10 new cases were coded, achieving above .80 agreement Krippendorff's in all categories. The final range of agreement was .82–.95, indicating that all categories had reached an optimal level of agreement. Regarding our second type of data, we performed descriptive analysis in the quantitative data based on the rating-scale type items run. Due to the attrition and the fact that multiple variables were not independent, statistical inference analyses were not used. For the interpretation of the variables reported in 10 points rating scales, we considered low values below 3.4, medium values between 3.5 and 6.6, and high values above 6.7.

RESULTS

RQ1. What is the trajectory of students' satisfaction in the transition to higher education? What variables do students report in relation to their satisfaction?

Analyzing the 10 points rating item data, the participants' satisfaction decreased throughout the academic year (Table 2). Four patterns were identified. First, in the first four weeks, the students' satisfaction decreased from the initial level based on the negative variables they reported —more in the next paragraph— and the participants' real experience of their previously idealized view of university. Second, by the end of the first and second semesters, their satisfaction decreased to a considerable extent because of the number of assessment activities (final exams, deadlines of activities to be handed out, etc.). Third, their return in the second semester showed the highest level of satisfaction, as they reported having a more adjusted view ($n=48$) as well as feeling more satisfied with the university as a learning environment ($n=34$) and the impact it was having on their lives ($n=26$). It is important to remember there was a high attrition of participants at this point; therefore, it could be that the ones that continued participating in the study were better adjusted. And fourth, over time the satisfaction scores became more centralized with a lower standard deviation.

Table 2*Students' satisfaction on their transition to higher education*

1 st week	2 nd week	3 rd week	4 rd week	Last week 1 st semester	1 st week 2 nd semester	Last week 2 nd semester
8.01 (2.45)	7.66 (3.01)	7.41 (2.72)	7.78 (2.55)	6.02 (2.03)	8.76 (1.95)	6.79 (1.78)

During the four first weeks, the selected major was the most reported variable ($n=124$) affecting positively or negatively the satisfaction with the transition. Students considered that either the major was a positive influence on their satisfaction ($n=85$), with the rest reporting it decreased their satisfaction ($n=39$). Additionally, the instructional setting was mostly perceived as stressful (e.g., teachers rushing into the content) ($n=78$) while a few participants perceived this as a positive aspect (e.g., this is an exciting and challenging environment) ($n=6$). The third major challenge was a block of variables related to social relationships such as students reporting having met new friends ($n=115$) and/or feeling socially comfortable in the classroom ($n=113$). A lower number of students reported either having problems establishing personal relationships in the classrooms ($n=14$) or feeling awkward ($n=23$).

After the first four weeks, the main variables affecting students' satisfaction changed for the rest of the academic year (see Table 3). Most students experienced academic success, new friendships, and major election as variables that affected their satisfaction positively. The learning climate produced mixed results with some students liking the challenging environment and others experiencing stress. Two highly reported negative variables were: the time spent commuting every day to the university, especially in comparison to their high school years where the vast majority had a short commute or even walked, and the lack of time for their social life due to the high demands of the university.

Table 3*Main variables affecting satisfaction after the first four weeks*

Academic success		Friendship		Learning climate		Major election		Commute		Lack of time for social life	
$n=127$		$n=119$		$n=101$		$n=38$		$n=91$		$n=89$	
+	-	+	-	+	-	+	-	+	-	+	-
97	30	112	7	50	51	30	8	0	91	0	89

Note. + indicates the number of students reporting that variable increased their satisfaction.
- indicates the number of students reporting that variable decreased their satisfaction.

RQ2. What are the main academic challenges of the transition to higher education?

After the first four weeks of collecting this data, there was a drop in reporting changes and challenges at the fifth measurement occasion (e.g., “No different than last time I filled the questionnaire”). Therefore, it was only measured again at the end of the first and second semesters. The frequencies represent the number of participants that reported that challenge, regardless of how many times that participant reported it.

Academic challenges (n=148)

This category includes multiple learning challenges that can inhibit learning by causing problems related to cognitive skills, motivation, emotions or well-being. All participants reported challenges of this type. Their main concern during the first four weeks was whether they would be ready and able to cope with the challenging university scenario. In the measures of the fifth week and the two occasions before the end of the first and second semester, the challenges became more specific referring to aspects such as the pressure to pass all the exams, group work tensions, or courses that had been especially difficult.

More freedom (n=119)

Of all the participants, 80.4% reported aspects related to experiencing more freedom. Interestingly, 66 of the participants reported this freedom in a positive light:

“One of the best aspects of the university is that I have total freedom to organize my time. I feel like a grown up now” (Participant 28)

The rest of the participants referred to that freedom as negative because they felt “lost” with no strict guidelines from the teachers:

“I am finding it very difficult...how to say it? This space...hmmm, this sensation that I can do as I please because I am responsible. I guess I should be happy to have such freedom, but I feel disoriented. I hope the money I am paying for this won't be in vain” (Participant 56)

More responsibilities (n=119)

The majority of the participants felt they had more responsibilities when compared to their high school years. For 71 participants, this had negative connotations:

“Teachers can help [at the university], but now I am the only one held responsible for whether I learn or not. And I am scared I will fail” (Participant 134)

Thirty-one participants reported responsibilities in a neutral tone making it difficult to determine whether they perceived this as negative or positive:

“In high school, teachers treated us as if we were still kids. Here, at the university, we are responsible for our learning and actions” (Participant 98)

Finally, for 17 participants, having more responsibilities was perceived as a natural evolution of their independence as students on their path to maturity.

“We have many more things here [at the university] that we are responsible for. I personally feel this is what we have been preparing for during the high school level (sic) ... like this is just natural, what should happen. Our opportunity to become full students” (Participant 32)

Feeling of anonymity (n=100)

This challenge was reported exclusively during the first four weeks, with a high concentration in the second (n=36) and third (n=45). The fact that it was not even once reported on the other three measurement occasions after the first four weeks might indicate that the participants felt more comfortable with anonymity. Also, that teachers were able to create more welcoming and personal learning classroom climates later in the semester.

“One of the biggest challenges is that here [university] ... well, you feel like a no one. Teachers do not usually learn your name. In high school, everyone knew you. Here you are just another one in a huge lecture hall ... I don't like that feeling” (Participant 1)

Relationship with teachers (n=97)

Something similar occurred with this category: 93 participants reported it during the first four weeks. Afterwards, this challenge is barely mentioned.

“University teachers are completely different from high school ones. Here you have to show more respect. It is not about the human relationship, but about showing respect” (Participant 11)

“My secondary teachers did worry about me as a person. At the faculty, there is no time to truly interact with the teachers. They are always very formal and like to keep a distance from you” (Participant 102)

Lastly, there were other categories reported to a lesser extent, some of which do not fall under the academic challenge category but were still reported in this question: making new friends (n=35), mediocre food at the university (n=29), not staying healthy because of lack of sport practice (n=15), and the need for a computer to follow the lectures (n=14). Finally, there were some personal challenges reported, too (e.g., emotional break-ups, family economic situation, the death of someone close).

RQ3. What are the emotional and motivational level trajectories and the main triggers?

This data can be seen in Figures 1 and 2. Three positive emotions — namely joy, hope, and pride — had a similar pattern. The participants reported high levels during the first weeks at the university. However, when the semester end approached, there was a step decline which occurred in both semesters. The assessment activities could have influenced this during those weeks: the higher the value in assessment, the lower the value in joy, hope, and pride.

Figure 1
Positive emotions reported

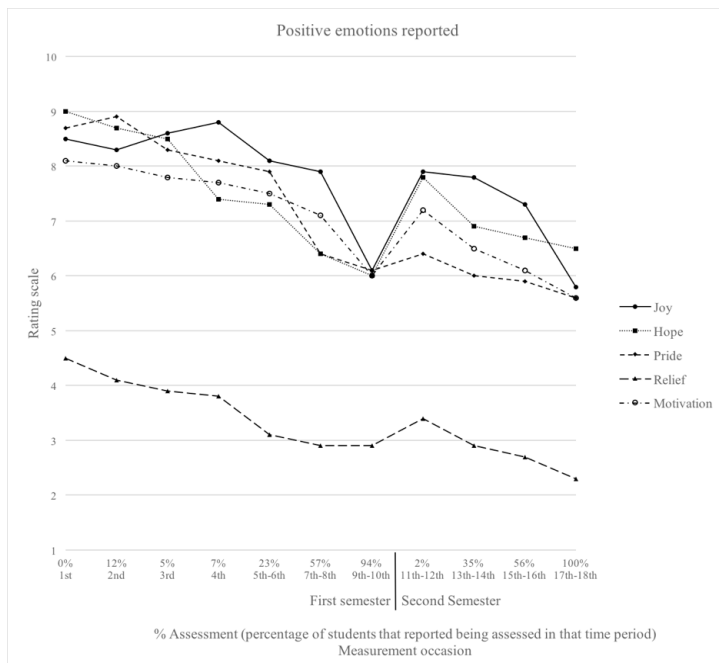
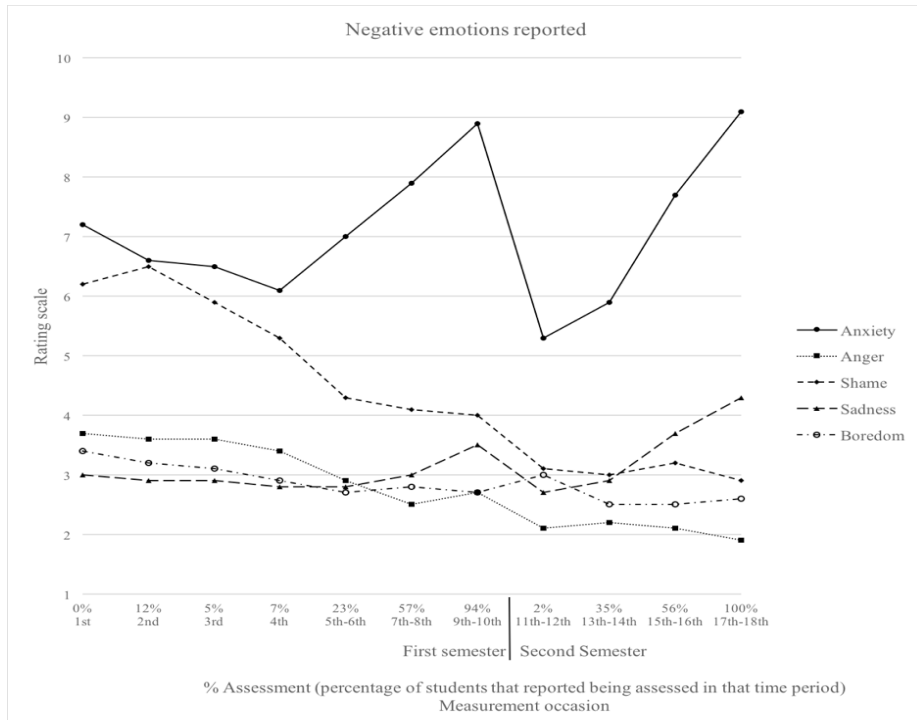


Figure 2
Negative reported emotions



A group of four other emotions —relief, anger, shame, and boredom— had a similar pattern, with a slight decrease from the beginning of the academic year with medium and low values (i.e., 4.5, 3.7, 6.2, and 3.4) to lower ones by the end of the year. It seems that the participants did not experience these emotions in particularly high intensities. Regarding relief, which was the highest of the three, the participants mostly reported it at the beginning as an emotion related to starting at the university and leaving behind a very academically intense period such as the last year of university preparation and the university entrance exam. Regarding shame, participants reported the first days of the university and facing a large group of classmates as being intimidating. Throughout the academic year, this emotion decreased as students became more used to the new environment.

Anxiety showed a different pattern. The participants reported 7.2 at the beginning of the academic year, which according to the corresponding qualitative data, was experienced because of their “nervousness” of a new learning environment and the transitional phase. Then, there was a decrease until the end of both semesters where the participants experienced very high values of anxiety that were related

to the increase in the number of assessment activities. Regarding sadness, the participants experienced low levels across the first semester with a small peak in the last weeks. However, in the second semester, this increase was higher, started earlier, and reached a higher level.

Regarding motivation, participants started with high levels of energy and expectations for the academic year as shown in the results of the 10 points Likert scaled item during the first four weeks. This level started going down until the end of the first semester, influenced by the increasing number of academic demands and assessment activities. Then, there was a rise in motivation at the beginning of the second semester followed by a decrease along the semester due to the increase of assessment activities. Motivation reached its lowest point by the end of the academic year, the period with the most assessment activities and where energy had run low.

In summary, the participants' experience of emotions evolved throughout the academic year. They started with high levels of some positive emotions —joy, hope and pride— that decreased during the semester, and four other emotions —relief, anger, shame and boredom— which can be considered as having negative valence, decreased throughout the academic year. Finally, anxiety and sadness showed their own pattern. The motivation was stable throughout the first weeks, with decreases by the end of the first and second semesters.

Next, the results of the exploration of the main emotional and motivational triggers, as collected via open questions, are presented (Table 4). The most reported trigger was “Assessment activities” which was mentioned by all the students and additionally, was by far, the most cited in terms of total frequency of appearance ($n=895$). Most students ($n=135$) reported a negative effect of “Assessment activities” for emotions and motivation, with their answers to the open questions expressing things as “too many (*assessment activities*)”, “too stressful”, “high stakes”, and so on. Interestingly, 21 participants reported at some point that “Assessment activities” was a positive motivator as they would be able to put into practice what they had learnt and even show off to classmates and teachers how much they had worked. The fact that the final number summation ($135 + 21$) is above the total sample (148) means that some participants reported positive and negative effects.

The second trigger was “Academic results” reported by a vast majority of participants and a total of 322 times. Here the positive and negative valence is more balanced, with 70 participants reporting a positive effect and 101 reporting a negative one. Different scenarios could occur, from participants feeling happy and joyful at the end of the semester or at one particular week (e.g., after receiving positive grades), to quite the opposite, with also some mixed situations in which a participant would report a positive effect on one occasion and a negative one on a subsequent occasion. The third more frequent category “Personal issues” includes aspects related to the personal life of the participant such as “falling in

love”, “relationship breakup”, “death in the family”, “problems with friends” and so on. It is an interesting category as it is the only one that is purely extraneous to the university setting. The rest of the categories are self-explanatory: “Tensions with classmates” mostly happening in relationship to group work situations, “Tiredness” being mostly reported in the peak assessment phases and by the end of the semesters, and “Tensions with teachers” mostly in relationship to disputes over grades. There were some cases in which these categories would trigger a positive effect for emotions and motivation; for example, two participants reported “Tensions with classmates” became motivators to show their group members that they would succeed in that course.

RQ4. What are the main learning strategies used and their trajectories?

Regarding the learning strategies reported by the participants, the data is presented in Table 5. The strategies reported are more related to acquiring and processing information than to explicit self-regulatory actions such as regulation of the learning environment, motivation, or emotion. The most frequent strategies were: (1) creating conceptual maps that help reorganize information, (2) summarizing information, (3) repeating the information verbally, (4) reading, (5) underlining and understanding the materials, and (6) memorizing. These strategies are related to basic cognitive processing of information and can be interpreted as basic and simple strategies. More advanced strategies as the ones explored in the self-regulated learning field such as “Planning study session” were grouped in the category “Others” due to its extremely low frequency.

Regarding the strategies to increase motivation, the vast majority of participants did not report any ($n=131$), a small number reported that motivation could not be changed ($n=7$) or that they did not know ways to change their motivation ($n=8$). Only two participants reported strategies, specifically: “Stop and go out, returning when ready” (Participant 35) and “Promise myself a candy after finishing what I was doing” (Participant 46).

In conclusion, the participants used learning strategies mostly aiming at processing or memorizing the content. Importantly, it is not possible to fully explore whether these strategies were successful as we did not collect academic records from the participants. Nevertheless, considering the reports of the participants that finalized the data collection, most of them were able to pass the first academic year successfully, success being defined here as not failing any courses.

Table 4
Main variables affecting emotions and motivation

Assessment activities	Academic results	Personal issues	Tensions classmates	Tiredness	Tensions with teacher	University not what expected	Commute
Part. n=148	Part. n=135	Part. n=95	Part. n=71	Part. n=51	Part. n=43	Part. n=35	Part. n=35
Oc. n=895	Oc. n=322	Oc. n=198	Oc. n=245	Oc. n=86	Oc. n=52	Oc. n=135	Oc. n=91
+	+	-	+	-	+	-	+
21	70	25	2	0	3	5	0
135	101	88	69	51	41	30	35

Note. Part. = Participants; Oc. = Occasions.

+ indicates the number of participants reporting that variable increased their positive emotions and motivation and/or decreased negative emotions

- indicates the number of participants reporting that variable decreased their positive emotions and motivation and/or increased

Table 5
Learning strategies reported

Conceptual maps	Summary	Repeating	Reading	Underlining	Understanding	Memorizing	Talking out loud	Notes lectures	Other
n=113	n=111	n=98	n=96	n=95	n=75	n=71	n=40	n=39	n=34
Times reported	Times reported	Times reported	Times reported	Times reported	Times reported	Times reported	Times reported	Times reported	e.g. planning
1-3 n=69	1-3 n=91	1-3 n=81	1-3 n=91	1-3 n=66	1-3 n=58	1-3 n=53	1-3 n=39	1-3 n=3	study
4-7 n=39	4-7 n=17	4-7 n=17	4-7 n=5	4-7 n=29	4-7 n=17	4-7 n=17	4-7 n=0	4-7 n=35	session,
8-18 n=5	8-18 n=3	8-18 n=0	8-18 n=0	8-18 n=1	8-18 n=0	8-18 n=1	8-18 n=1	8-18 n=1	extra materials, etc.

Discussion

Our aim was to perform a longitudinal analysis, informed through learning diaries, of the evolution of five crucial variables during the first year of university: satisfaction, academic challenges, emotional and motivational trajectories, and learning strategies. Throughout this process, we paid special attention to the effects of assessment in those factors as this was shown to be crucial for the adaptation of freshmen (Ellison & Jones, 2019; Thomas et al., 2019). Next, we discuss the findings considering the research questions.

Regarding RQ1, we found that the pattern of satisfaction changed throughout the year. In our study, a decrease in students' satisfaction occurred during both semesters, which might have been related to a higher number of assessment activities. This hypothesis would be in line with previous research findings that first year students struggled to deal with assessment activities. This was mainly in the first semester (Ellison & Jones, 2019) due to the differences from the assessment activities in high school. At the beginning of the second semester, satisfaction increased again, which could be related to overcoming the academic challenges of the first semester (e.g., higher responsibility, freedom), and a sense of achievement after coping with the first semester assessments (Christie et al., 2013). Additionally, this could be influenced by a sense of having become "autonomous learners", one of the keys to succeed in the more emancipated environment of higher education (Harvey et al., 2006). Importantly, satisfaction decreased again by the end of the second semester when assessment activities increased.

Regarding RQ2, we want to emphasize three of our findings on challenges. Firstly, our participants reported as challenges aspects with positive outcomes, which probably indicates surprise or personal achievement after struggling. Secondly, over time students reported fewer challenges, probably because participants became more realistic and felt more comfortable in the new learning environment. And third, students do struggle during the transition, mostly with academic challenges but also with aspects that might be less evident to lecturers such as feelings of anonymity or new friendships. Previous research emphasizes that it might be necessary to satisfy students' main initial expectations while helping them to overcome these challenges (e.g., Koivuniemi et al., 2017; Smith & Wertlieb, 2005), via adjustment to novel forms of assessment (Ellison & Jones, 2019; Thomas et al., 2019) or paying attention to the relationship with teachers as students feel teachers are less close (Thomas, 2012). In fact, one of the reported challenges in our study was experiencing anonymity during the first several weeks before adapting to the relationship with teachers and knowing the new classmates. However, after this initial stage, students did not report challenges related to anonymity anymore. This was probably because students had more

cohesive relationships throughout the year, which is also an essential factor for a successful transition to university (Hillman, 2005).

Apart from the most direct academic challenges, students were affected by the lack of time and difficulty in maintaining a balance between academic and social life as also found in previous research (Moreau & Leathwood, 2006). As mentioned by Krause and Coates (2008), time management is a crucial skill for a successful transition. We found other issues that adversely affect the motivation of students, as a result of them losing their previous close-knit, family ambience: commuting to and from university, food, the need for a laptop, and lack of physical activity. In other words, a range of issues arising from a new and unfamiliar context usually far from home, which necessitates a quick adaptation (Krause & Coates, 2008). Therefore, universities need to pay better attention to these challenges and intervene accordingly.

Regarding RQ3, we explored the emotional and motivational trajectories finding that some emotions raised in what seems to be a relationship with the number of assessment activities. This way, during the exam period students reported an increase in anxiety and sadness and the decrease of joy, hope, pride, and motivation. As Christie et al. (2008) note, some emotions (e.g., anxiety) are increasingly associated with higher responsibility. Interestingly, our qualitative data also showed a number of participants arguing that their time had come to demonstrate what they had learnt and their unwavering effort; in other words, they had a positive reaction to the increase of assessment activities. Our results also show that shame was mostly experienced during the first weeks of the academic year but disappeared once the new environment became familiar, a similar effect was found with relief. The analysis of the main variables affecting emotion and motivation clearly shows that the students usually reported more negative effects of these triggers than positive and that there was a wide range of trigger categories from assessment activities to tensions with classmates or teachers and commuting issues. Similar types of triggers have been found in previous research (e.g., Niculescu, 2015).

Finally, regarding RQ4, a clear picture emerges from the exploration of the use and development of learning strategies: students mostly reported strategies that aim for information processing or memorizing the content (e.g., reorganizing information, summarizing). There were barely any reports of more advanced learning and self-regulatory strategies. This is interesting as it is usually claimed that university requires adaptation into a more active and autonomous role (Kantanis, 2000). However, here students reported using more basic approaches not involving self-regulated actions for learning, motivation, and emotions. Importantly, this study did not control for what was required from the students in their classroom and data came only from self-report. Therefore, it cannot be concluded whether this approach was sufficient to fulfill the academic demands of the different courses, though the participants that finalized the data collection passed all of their courses.

This result is in opposition to the “transitional jump” regarding learning strategies found in earlier studies (Coertjens, Donche, et al., 2017). Mismatches between teachers’ and students’ expectations might happen (Cliff, 2000): while students expect maximal regulation from their teachers, teachers adopt minimal regulations, and learners might not be aware that they should display different levels of regulation. We must also take into account that sometimes students perceive they are learning less than what they are actually learning (Deslauriers et al., 2019). Therefore, it seems like students maintained the same strategies they used in secondary education, but this might be a stage in the process to successfully become more autonomous learners, or it could be explained by a difficulty in identifying and declaring more advanced self-regulatory strategies. Finally, it is essential to emphasize that previous research has used already validated questionnaires (e.g., Coertjens, Donche, et al., 2017), while here we used an open question approach. It could be the case that questionnaires biases students toward reporting the use of strategies they are not really using (Samuelstuen & Bråten, 2007).

This study has limitations. First, it suffered from participants’ attrition due to its extension — one year long — and the fact that the participants were only accessible via email. Importantly, this effect was not as severe as could have been expected as a reasonable number of participants still contributed during the second semester. Second, this is a descriptive study; therefore, the data analysis has remained at a descriptive level exploring the trajectories and patterns observed in the quantitative and qualitative data. Due to the type of sample selection procedure results are not generalizable. Future studies should employ stronger sample selection and run inferential analysis. Third, participation was voluntary, which might have limited the participation to only the most motivated and disciplined students. And fourth, our data was self-reported, which was the type of data we needed as we were trying to understand the transition to higher education from the students’ perspective, but we are aware of the limitations of self-report by now. Future research should continue this line of work using longitudinal designs with stronger sample selection, a higher number of participants, trying to reduce attrition, and planning for measuring intervention effects to decrease academic challenges and emotional and motivational struggles.

CONCLUSIONS

Our one-year longitudinal study adds to the evidence that the transition to higher education is challenging for students. The results clearly indicate that aspects such as satisfaction, emotions, or motivation fluctuate throughout the academic year. A remarkable example is being able to enroll in the top choice major which is a crucial variable during the first weeks, but which influence disappears soon in favor

of other variables that end up being more relevant for students' satisfaction during the academic year. The fact that variables are far from static indicates that students undergo different phases as freshmen and universities should better prepare them with more specific interventional programs. These services can be aimed at supporting students, their decision making, providing co-curricular and curricular activities, etc. (Gale and Parker (2014) proposed numerous examples of research and case studies of good practice with those purposes). Based on our findings, these interventions should also cover aspects such as university services, how to contact lecturers, how to be ready for the assessment activities, students' rights, and so on. Additionally, the effects of the assessment activities on students' emotions and motivation are higher than expected, being the most cited trigger by far. Lecturers should be aware of these effects and try to reformulate their assessment practices which would probably have a substantial positive effect.

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