

# MOTIVATION, SELF-REGULATION AND STUDY APPROACHES TO LEARNING IN ONLINE POSTGRADUATE UNIVERSITY STUDENTS

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## ABSTRACT

*Enrolment in master's programmes, especially online ones, has increased exponentially in recent years. This article analyses the relationship that several sociodemographic and academic variables have with motivational components, self-regulation, study approaches, and competence development in online university postgraduate students. The following self-report questionnaires were used: the Motivated Strategies for Learning Questionnaire (MSLQ), the Self-Regulated Learning Processes Inventory (IPAA), and the Study Processes Inventory (IPE), as well as an ad hoc questionnaire relating to competence development. We found statistically significant differences in all the variables studied. The number of hours spent studying turned out to be significant in learning strategies linked to a deep approach. The factors analysed influence motivation, self-regulation, and competence development associated with the programme, and that the students participating in the study approach this process from a deep learning approach.*

**Keywords:** *motivation, self-regulation, study approaches, postgraduate students, online education*

## INTRODUCTION

Master's degrees are currently a challenge for universities because, in addition to the natural demands of any studies, there has been an almost 70% increase in enrolments and completion of degrees compared with figures from five years ago (Ministerio de Universidades, 2021). Indeed, the Conferencia de Rectores de Universidades Españolas (Association of Rectors of Spanish Universities) in its annual report (CRUE, 2019) analyses how growth in undergraduate enrolments has slowed, while master's programmes, especially distance and online ones, have seen their enrolments increase in both public (85%) and private (90%) universities from 2012 to the present day.

This is a challenging situation for institutions that aim to be competitive and position themselves

in the world rankings of universities in teaching quality, learning, business connections, and research output (Center for World University Rankings, 2022; Times Higher Education, 2022). Despite this situation, and while there has been an increase in publications relating to online university education (Bellhäuser et al., 2022; Kuong Morales et al., 2021; Muzammil, et al., 2020), there is little research into how university master's students learn (Hammoudi, 2019; Pereles et al., 2020; Wagener, 2018), especially in a digital setting, that considers their motivations, capacities, and approaches for studying and obtaining knowledge.

There are a variety of master's degrees for practising teaching as a profession in the Spanish education system. The teaching qualification that has the most applications for and students

enrolled in is the University Master's in Teacher Training in Compulsory Secondary Education, Spanish Baccalaureate, Professional Training, and Language Teaching. In fact, the number of places that offer all these specialties has increased tenfold in comparison with other postgraduate programmes in public and private universities at the national level, which raises the more specific question of how people who are going to teach learn.

## LITERATURE REVIEW

### *Learning and Motivation*

Learning is determined by a series of historically linked factors, with motivation, the capacity for self-regulation, and study approaches standing out among them. In fact, student motivation and the components that define it play a vital role in learning and academic performance (Bandura, 2019; Duncan & McKeachie, 2005; Pintrich et al., 1993; Pintrich & Schunk, 2006; Rosário et al., 2014; Valle-Arias et al., 2017). On this line, Ryan et al. (2021) analyse self-determination theory (SDT) and consider the learning subject as a whole in an effort to understand the capacities people possess to be able to develop self-regulation, including the skills of self-awareness, active learning, and control of instincts, as well as internalising cultural norms and reflexively considering one's own behaviours while making informed decisions.

In fact, the self-determination theory proposes an image of the learner as a person in search of growth, autonomy, and self-awareness, in which motivation will play a crucial role. Thus, combining different contributions from psychological theories such as attribution, goal, or social-cognitive (Bandura, 2019; Elliot & Dweck, 2004; Pintrich & Schunk, 2006), motivation is understood as persistent intentional energy and direction, driven by previously established goals. Graham and Weiner (2012) consider six determinants of motivation: value, self-efficacy, learned helplessness, task involvement versus ego, intrinsic and extrinsic motivation, and cooperation versus competitiveness in goal setting or achievement. This provides a global vision of the individual who acts and moves that is conditioned by contextual and personal factors. All this gives rise to the differentiation of internal motivation and external motivation (Ryan & Deci, 2017). The first of these is an end in itself and is determined by the subject's self-perception

in that the more capable they feel, the greater the motivation they will present. External motivation, on the other hand, is a means to achieve a specific end that is agreed upon by the group (e.g., institution, family, work).

Motivation, and the components that define it, therefore considered to play a fundamental role in learning and academic performance (Núñez et al., 2015; Rosário et al., 2014). In relation to self-regulation, although the subject feels the need to assume some control over situations, it is essential to approach self-regulation from the perspective of the cognitive processes that drive motivation and action.

### *Metacognition and Deep Approach*

Biggs (1988) explained how the metacognitive processes is forged in students when they set in motion motivational and goal achieving mechanisms as they encounter a learning process using strategies and analyses that help them and make them conscious of this educational circumstance. A deep approach is produced when the student is responsible for the process and displays intrinsic motivation to learn and engage with the subject matter being studied, while a superficial approach is related to extrinsically motivated behaviour and rote learning and is aimed at obtaining the qualification rather than knowledge of the content (Tourón & Santiago, 2014). Motivation, self-regulation, and control will therefore be essential pillars when considering the academic behaviour of students, and an approach that facilitates the development of their talents and potential.

### *Self-regulation Learning*

Relevant empirical studies at an international level with university and nonuniversity populations (Amieiro et al., 2018; Cano Garcia, 2000; Covington & Dray, 2002; Entwistle, 2009; Weinstein et al., 2000), show how some personal components of the student (fundamentally, gender and age), and contextual components (teaching experience, area of knowledge or time committed) can play an essential role when establishing certain patterns of behaviour towards their study, motivation, and relationship to learning.

Similarly, analysing and developing self-regulation capacities is fundamental and one of the key elements to consider in the Education and Training ET2020 strategic framework (Eurydice, 2012) and

in Agenda 2030 with regards to quality of education (Eurydice, 2022; UNESCO, 2017).

To assess this, self-report questionnaires that emphasise the learner, based on sociocognitive theories, have been used in studies. The motivational components of this include the beliefs that the learner has regarding task accomplishment (perceptions of self-efficacy and control of learning), the value or reasons why the learner engages in the task (intrinsic motivation, extrinsic motivation, and value of the task), and the affective components (test anxiety) as found in the MSLQ (Pintrich et al., 1993). Created at the University of Michigan, it is a very useful instrument for assessing motivational components and learning strategies in students. It has been validated internationally for all levels of education, although it stands out for the university environment and shows how the items analysed reveal significant relationships within university academic performance (Credé & Phillips, 2011). However, some of its components are not without doubt, mainly the self-regulation components in terms of the formulation of questions or the regulation of effort (Curione & Huertas, 2016).

Although this questionnaire addresses the self-regulation components in the learning strategies scale, some questionnaires have been recently developed that are finding good validity and reliability data in their studies, such as the *Inventario de Procesos de Autorregulación del Aprendizaje* (Processes of Self-Regulation of Learning Inventory, IPAA) (Rosário et al., 2007). Similarly, to understand self-regulation in a more complete way, deep and shallow learning approaches are considered. The self-report questionnaire IPE by Rosário et al. (2013) is used to assess this. Both assessments have recently been used in research at undergraduate (Amieiro et al., 2018; Arias et al., 2019) and postgraduate (Pereles et al., 2020) levels, as well as at lower stages of education (Gaeta González & Cavazos Arroyo, 2014). All of them reveal the importance of the teacher's role in promoting the processes of self-regulation of learning in students on a continuous and permanent basis. Thus, self-regulation and its components are widely examined in the field of education and form one of the key elements when tackling the deep learning approach (Biggs, 1988; Duncan & McKeachie, 2005; Rosário et al., 2007).

### *Online Teaching and Learning in Higher Education*

The role of the teacher plays an essential part boosting the students' knowledge and their ability to develop competences that are associated with the qualification they seek and that permit them to be conscious of its implications at an academic and professional level. In addition, for in-person postgraduate students, the Covid-19 pandemic has caused problems with anxiety (Gayen & Sen, 2021) as students had to adapt to virtual teaching settings and resources (Isman et al., 2023; Khalid et al., 2021) and acquire autonomy in the study process, something for which they were not trained (Rubio-Tinajero & Zapata-Contreras, 2021; Seladorai & Mohamed, 2021). In these terms, where much teaching has been displaced from in-person settings to online ones, our study asks how postgraduate students learn in an online university.

#### **PURPOSE OF THIS STUDY**

Approaching postgraduate students and discovering how particular variables influence their learning, their study approaches, and their capacity for self-regulation is still a new topic that requires more in-depth study. Accordingly, having analysed the problem associated with this field of study, we propose as our objectives to explore students' perceptions of motivational components, self-regulation, study approaches, and competence development to consider possible differences in these variables depending on the sociodemographic and academic characteristics of the online university postgraduate students.

#### **METHODOLOGY**

##### *Participants*

The research population comprised all of students taking the Master's in Teacher Training in Compulsory Secondary Education, Spanish Baccalaureate, Professional Training and Language Teaching ( $N = 942$ ), which is delivered wholly online, during the 2021-22 academic year at the Universidad Internacional de La Rioja. We used nonprobabilistic convenience sampling, and the resulting sample comprised 228 students. Table 1 shows the data relating to sociodemographic and academic variables.

Table 1.

Demographic and Academic Variables of the Sample

	Variable	Category	Percentage
Demographic	Gender	Male	72.0%
		Female	28.0%
	Age	Under 30	31.5%
31-40		36.5%	
Over 40		32.0%	
Academic	Area of knowledge for accessing the master's	Social and Legal Sciences	29.4%
		Humanities	25.8%
		Health Sciences	5.9%
		Engineering and Architecture	23.5%
		Experimental Sciences	15.4%
		Teaching experience	No experience
		Less than one year	19.1%
		1-3 years	13.8%
		4 years or more	12.3%
	Hours spent on tasks per week	1-10	56.6%
		11-20	29.4%
		> 20	13.2%
Hours spent on study per week	1-10	77.6%	
	11-20	17.1%	
	> 20	5.3%	

The instructional design is common for all the specialties of the master's degree. Students have access to the materials once they access the virtual classroom, as along with weekly virtual, synchronous sessions and a continuous assessment process with common activities for each subject but contextualised to each specialty.

## DATA COLLECTION INSTRUMENTS

### Motivational Components

To evaluate the students' motivational components towards learning during their process of training to be teachers, we used the Motivated Strategies for Learning Questionnaire (MSLQ) scale, previously translated into Spanish and validated by Pintrich et al. (1993) and Pintrich (2003). This comprises three dimensions: (a) value components, comprising three subdimensions relating to intrinsic goals, extrinsic goals, and task value; (b) expectancy, with two subdimensions relating to beliefs and self-efficacy on learning; and (c) affective components, with one subdimension relating to test anxiety (Table 2). The items were evaluated

using a Likert scale (1 = *not at all true of me* to 5 = *very true of me*). We determined the reliability of the instrument using Cronbach's alpha, which was 0.776, and so had adequate reliability and was valid for the study.

Table 2.

Dimensions of the MSLQ Scale

Dimensions	Subdimensions	Items
Value components	Intrinsic goal orientation	1, 16, 22, 24
	Extrinsic goal orientation	7, 11, 13, 30
	Task value	4, 10, 17, 23, 26, 27
Expectations	Control of learning beliefs	2, 9, 18, 25
	Self-efficacy for learning and performance	5, 6, 12, 15, 20, 21, 29, 31
Affective components	Anxiety	3, 8, 14, 19, 28

### Self-regulation of Learning Process

We used the Procesos de Autorregulación del Aprendizaje (Processes of Self-Regulation of Learning Inventory, IPAA), validated by Rosário et al. (2007), to determine the students' perceptions of the use of self-regulating processes in the learning tasks. This comprises three dimensions that globally measure aspects relating to the planning and organisation of tasks, their execution, and their evaluation (Table 3). The items were evaluated using a Likert scale (1 = *never* to 5 = *always*). We analysed the reliability of the instrument, which gave a Cronbach's alpha of 0.879 that was adequate for the research.

Table 3.

Dimensions of the Processes of Self-Regulation of Learning Inventory (IPAA)

Subdimensions	Items
Planning	1, 5, 9, 12
Execution	6, 8, 10
Evaluation	2, 4, 7, 11

### Study Approaches

To gather information about the students' perception of the study approaches, we used the Inventario de Procesos de Estudio (Study Processes Inventory, IPE) previously validated by Rosário et al. (2013). This is a self-report comprising two dimensions: (a) a superficial study approach, with the subdimensions of extrinsic motivation and use

of reproductive learning strategies approaches; and (b) a deep study approach, with the subdimensions of intrinsic motivation and use of elaboration and metacognition strategies. Table 4 shows the dimensions and the items that comprise them. The items were evaluated using a Likert scale (1 = *never* to 5 = *always*). We analysed the reliability of the instrument, which gave a Cronbach's alpha of 0.885, so the instrument was regarded as having adequate reliability.

Table 4.  
Dimensions of the Study Processes Inventory (IPE)

Dimensions	Subdimensions	Items
Superficial study approach	Superficial learning strategies	1, 5, 9
	Superficial motivation	3, 7, 11
Deep study approach	Deep learning strategies	4, 8, 12
	Deep motivation	2, 6, 10

### Competence Development

Finally, we used an ad hoc questionnaire for the students to evaluate how much the master's contributes to their competence development. This questionnaire comprised eight items that make it possible to self-evaluate acquisition of knowledge, communicative skills, critical thinking, autonomous learning, problem-solving, and developing ethical values. The items were evaluated using a Likert scale (1 = *Very little* to 4 = *A great deal*). We determined the reliability of the instrument using Cronbach's alpha, which was 0.852, so the instrument had adequate reliability for the study.

We developed the global questionnaire in Google Forms and shared the link with the students by email. Potential participants were informed of the objectives and their anonymity was guaranteed. All of them agreed to take part. The research was approved by the ethics committee (PI:020/2021).

### Research Process and Data Analysis

This research featured a quantitative methodology with a nonexperimental descriptive and transversal survey-type design. The study variables were sociodemographic characteristics (gender and age) and academic characteristics (teaching experience, area of knowledge of access to the master's, and hours per week spent

on tasks and studying). The dependent variables were students' perceptions of motivational components and self-regulation towards learning, study approaches, and competence development.

To test the assumption of normality, we used the Kolmogorov–Smirnov test. This gave significant values in all of the dependent variables, so we assumed that these do not follow a normal distribution. To analyse potential differences in dependent variables depending on the categories of sociodemographic and academic variables, we used the Mann-Whitney U test to compare measurements by pairs and the Kruskal–Wallis H test for  $k$  samples of independent measurements (with a significance level of  $p < 0.05$ ). In the variables where we found significant differences, we calculated the effect size using the eta-squared  $\eta^2$  coefficient with more than two independent groups (0.01 small effect size, 0.06 medium, and 0.14 or higher, large effect) and Cohen's  $d$  standardised difference coefficient for two independent groups (0.20 small effect size, 0.50 medium, and 0.80 and higher, large effect) (Cohen, 1992). We organised, coded, and analysed the data using SPSS v.25.0.

### RESULTS

Focusing on the valuations that the students make in their self-reports, the mean for student perceptions of the dimensions Motivational Components, Self-Regulation Learning, and Study Approach is between 3 and 4 (on a 1–5 scale), reflecting the importance of the subdimensions selected during the process of learning and performance of the course. The highest mean belongs to Self-efficacy beliefs ( $M = 4.05$ ), Task value ( $M = 3.99$ ), and Executions ( $M = 3.92$ ). Deep approach motivation ( $M = 3.90$ ) stand out in particular, followed by Intrinsic goal orientation ( $M = 3.87$ ), Planning ( $M = 3.86$ ), Control beliefs ( $M = 3.59$ ), Deep approach strategies ( $M = 3.57$ ), and Evaluation ( $M = 3.55$ ), also Superficial approach motivation ( $M = 3.51$ ). The means scores for Test anxiety, Extrinsic goal orientation, and Superficial approach strategies are lower than 3. In Competences (using a 1–4 scale), a mean greater than 3 is only obtained in the case of Knowledge acquisition, and Autonomous learning (Table 5).

Table 5.

Means and standard deviations of dimensions and subdimensions of motivational components, self-regulation, study approaches and competence development.

	Subdimensions	Mean	SD
Motivational Components (MSLQ)	Intrinsic goal orientation	3.87	.72
	Control beliefs	3.59	.70
	Test anxiety	2.68	.54
	Task value	3.99	.73
	Self-efficacy beliefs	4.05	.62
	Extrinsic goal orientation	2.79	.70
Self-regulation Learning (IPAA)	Planning	3.86	.69
	Execution	3.92	.70
	Evaluation	3.55	.67
Study Approach (IPE)	Superficial approach strategies	2.21	.84
	Deep approach strategies	3.57	.82
	Superficial approach motivation	3.51	.94
	Deep approach motivation	3.90	.82
Competences (ad hoc)	Knowledge acquisition	3.29	.71
	Communicative	2.32	.60
	Critical thinking	2.82	.74
	Problem-solving	2.60	.60
	Autonomous learning	3.17	.82
	Ethical values	2.79	.81

With regards to Motivational Components, the highest mean corresponded to the subdimensions of Self-efficacy beliefs, Task value, and Intrinsic Goal Orientation, respectively. The following appear in decreasing order: “I’m confident I can learn the basic concepts taught in the different

subjects” ( $M = 4.32$ ;  $SD = .81$ ), “I think I will be able to use what I learn in some subjects in others” ( $M = 4.29$ ;  $SD = .73$ ), and “If I try hard enough, then I will understand the content of the subjects” ( $M = 4.27$ ;  $SD = .75$ ).

In the case of Self-regulation Learning, two items from the Execution subdimension stand out (from highest to lowest): “I look for a quiet place where I can concentrate to study” ( $M = 4.41$ ;  $SD = .82$ ), and “When I study, I try to understand the subjects, I take notes, I write summaries, I solve exercises, I ask questions about the content” ( $M = 4.21$ ;  $SD = .83$ ). From the Evaluation subdimension this item stands out: “I keep and analyse the corrections of the written/midterm works so that I can see where I have gone wrong and know what I have to change to improve” ( $M = 3.96$ ;  $SD = 1.02$ ).

In relation to Study Approach, three items relating to Study Approach stand out (in descending order). This item relating to the Deep approach strategies subdimension stands out: “When I receive corrected exams/pieces of work, I read the corrections carefully and I try to understand the cause of my errors” ( $M = 4.40$ ;  $SD = .80$ ), with regards to learning strategies. The following two statements stand out in the Deep approach motivation subdimension: “I think it is important to invest time and effort in trying to relate the new content I study with what I already know about this topic” ( $M = 4.15$ ;  $SD = .84$ ), and “I like to study. When I study, I try to understand what is written in the books/notes and put it in my own words” ( $M = 3.93$ ;  $SD = .91$ ).

As for Competences, addressing the skills acquired during the master’s, the items with the highest means correspond to Knowledge acquisition ( $M = 3.29$ ;  $SD = .71$ ), Autonomous learning ( $M = 3.17$ ;  $SD = .82$ ), and Critical thinking ( $M = 2.82$ ;  $SD = .74$ ).

#### Sociodemographic Characteristics

Statistically significant differences by gender are apparent in the Test anxiety and Extrinsic goal orientation subdimensions of the Motivational Components dimension and in the Critical thinking subdimension in the Competences dimension (see Table 6). The mean rank is always greater for women than for men. The effect size is small except for the case of test anxiety where it is medium.

Table 6.  
Differences by Gender in the subdimensions studied.

Subdimensions	Mann-Whitney U	z	Mean rank*	Sig.	Cohen's d
Test anxiety	3251.500	-4.132	123.18/83.61	.000	.567
Extrinsic goals	3986.500	-2.394	118.89/95.80	.017	.323
Critical thinking	4202.500	-2.181	118.56/98.71	.026	.276

\*Ranks ordered by male/female.

With regards to the teacher's age (Table 7), statistically significant differences are found in four subdimensions, specifically: Intrinsic goal orientation in Motivational Components, Execution in Self-regulation Learning, and Deep approach strategies and Deep approach motivation in Study Approach. Pairwise analyses of the ranks of the three age categories with the Mann-Whitney U test to determine where they are located was considered carried out. A significant difference was observed in the valuations of the four subdimensions by

the students aged over 40 (category 3 in the pairs) compared with the two lower-age categories. There are higher ranks for the older group and a small effect size for all, except for Intrinsic goal orientation and Deep approach strategies, where the effect size is medium.

#### Academic Characteristics

We found statistically significant differences by teaching experience in Self-regulation, specifically in the Planning and Evaluation subdimensions, and in Study Approach, in Superficial approach motivation, Deep approach motivation, and Deep approach strategies. In Competences, differences were apparent in the subdimensions of Communicative, Problem-solving, and Ethical values (Table 8). In the pairwise comparisons, the differences mainly occur in the category with the most experience (more than four years), which always displayed a higher rank than the other groups with an effect size that is almost always moderate.

With regards to the areas of knowledge from which the participants accessed the master's, two subdimensions displayed statistically significant differences: Extrinsic goal orientation and Planning (Table 9). In the pairwise analysis of the five areas considered, significant differences were apparent in both scales, with higher ranks in the social and

Table 7.  
Differences by Age in the Variables Studied

Subdimension	Kruskal-Wallis H	Ranks*	Sig.	$\eta^2$	pair	Mann-Whitney U	Ranks	Sig.	Cohen's d
Intrinsic goal orientation	10.932	91.68/107.12/ 126.66	.004	.035	(1,3)	1581.000	68.42/ 80.80	.001	.606
Execution	7.198	109.59/95.96/ 123.34	.027	.010	(2,3)	2034.500	65.75/ 84.51	.007	.447
Deep approach strategies	11.217	102.87/110.20/ 113.75	.004	.018	(1,3)	1610.500	58.34/ 79.82	.001	.562
					(2,3)	2107.500	66.84/ 83.51	.017	.395
Deep approach motivation	7.796	96.91/104.99/ 125.56	.020	.011	(1,3)	1725.000	59.87/ 78.00	.007	.469
					(2,3)	2238.500	68.48/ 82.56	.045	.308

Table 8.  
Differences by Reported Teaching Experience

Subdimensions	Kruskal-Wallis H	Mean rank*	Sig.	$\eta^2$	Pair	Mann-Whitney U	Ranks	Sig.	Cohen's d
Planning	11.139	105.75/103.01/ 116.03/148.36	.011	.016	(1,4)	1038.500	69.58/ 98.41	.001	.553
					(2,4)	366.500	30.52/ 44.41	.005	.699
Evaluation	15.998	98.99/115.56/ 130.73/147.07	.001	.025	(1,3)	1365.000	73.10/ 94.97	.014	.401
					(1,4)	968.000	69.87/ 102.93	.000	.615
Superficial approach motivation	11.724	100.27/121.90/ 122.68/140.86	.008	.017	(1,4)	1041.000	70.98/ 98.07	.001	.550
Deep approach motivation	10.818	106.47/118.89/ 97.52/146.00	.013	.015	(1,4)	1103.000	70.97/ 98.09	.003	.497
					(3,4)	256.000	24.26/ 36.36	.006	.752
Deep approach strategies	11.576	112.82/99.42/ 97.94/147.32	.009	.016	(1,4)	1186.500	71.23/ 94.13	.011	.427
					(2,4)	353.000	30.21/ 44.89	.003	.715
					(3,4)	229.500	23.40/ 37.30	.002	.884
Communicative	9.522	105.74/117.14/ 107.27/144.88	.023	.012	(1,4)	1125.500	71.15/ 97.30	.003	.478
					(3,4)	293.000	25.45/ 35.04	.025	.580
Problem-solving	13.019	108.41/99.73/ 114.87/151.45	.005	.019	(1,4)	1067.500	70.68/ 99.38	.001	.527
					(2,4)	314.500	29.31/ 46.27	.000	.852
					(3,4)	299.500	25.66/ 34.80	.034	.551
Ethical values	8.632	107.45/ 108.91/ 112.40/144.32	.035	.011	(1,4)	1166.000	71.48/ 95.86	.005	.444
					(2,4)	399.000	31.28/ 43.25	.010	.563

\*Ranks ordered by categories: No experience/less than 1 year/1-3 years/4 years or more.

legal sciences and humanities than in the group of experimental sciences, health sciences, and engineering and architecture. As the table shows, the effect sizes are medium. In this sense, differences are observed despite the same instructional design, possibly due to their previous university training derived from the peculiarities of each profession.

There are significant differences in four subdimensions of dedication to tasks and activities: Execution within Self-regulation Learning,

Superficial approach strategies and Deep approach strategies within Study Approach, and Autonomous learning within Competences (Table 10).

In the pairwise analysis of categories, significant differences are apparent in the evaluations of Execution, Deep approach strategies, and Autonomous learning subdimensions. The ranks are always higher for categories 2 and 3. This means that the students who spend more than 10 hours a week on the tasks tend to value these subdimensions



Table 9.  
Differences by Area of Knowledge for Accessing the Master's

Subdimensions	Kruskal-Wallis H	Rank*	Sig.	$\eta^2$	pair	Mann-Whitney U	Ranks	Sig.	Cohen's d
Extrinsic goal orientation	20.875	101.14/139.82/ 127.23/103.92/83.76	.000	.032	(1,2)	1200.000	51.46/ 72.07	.001	.613
					(2,4)	971.500	63.15/ 45.18	.003	.549
					(2,5)	464.500	54.21/31.16	.000	.946
					(3,5)	133.000	30.77/21.41	.035	.641
Planning	11.386	116.75/126.85/ 109.12/95.57/88.62	.023	.014	(1,5)	815.000	54.46/ 41.47	.031	.440
					(2,4)	1008.500	60.66/ 45.77	.012	.099
					(2,5)	597.000	51.15/ 35.06	.004	.655

\*Ranks ordered by social and legal sciences/humanities/health sciences/engineering and architecture/experimental sciences

Table 10.  
Differences according to hours per week spent on homework1 and study2 on the studied variables.

Subdimensions	Kruskal-Wallis H	Rank*	Sig.	$\eta^2$	pair	Mann-Whitney U	Ranks	Sig.	Cohen's d
Execution	2.630	99.43/125.40/143.18	.001	.001	(1,2)	3305.000	90.32/112.67	.008	.383
					(1,3)	1166.500	73.61/104.62	.001	.551
Superficial approach strategies	11.043	125.83/98.93/93.03	.004	.017	(1,2)	3306.500	106.37/83.35	.007	.383
					(1,3)	1360.000	84.46/60.83	.011	.403
Deep approach strategies	10.759	101.20/125.19/136.92	.005	.017	(1,2)	3360.500	91.95/111.58	.015	.361
Autonomous learning					(1,3)	1309.500	75.15/100.85	.006	.441
	6.378	104.75/123.66/128.45	.021	.008	(1,2)	3602.000	92.92/109.24	.040	.265

\*Ranks ordered by (1)1-10/(2)11-20/(3) over 20 hours.

more highly. However, in the Superficial approach strategies, the higher rank corresponds to the category with fewer hours, from 1 to 10 hours per week. Moreover, in dedication to study, differences only appear in the Deep approach strategies, with higher ranks as the number of hours per week increases but with small and medium effects.

## DISCUSSION

The analyses performed and the results obtained in this study show that the students from the Nepal Online University, Master's in Teacher Training who participated in this research have high intrinsic motivation and a clear tendency to use self-regulation strategies. They also have an

appreciation for deep learning approach and place a high value on doing learning tasks. This is shown in the internal coherence in the answers to the items proposed and is in line with the results obtained in previous research into how these variables establish a close relationship to efficient, effective, and quality learning (Cerezo et al., 2019; Díaz-Mujica & Pérez-Villalobos, 2013; Zimmerman, 2001).

It is also important to note the participants perceived high level of self-efficacy beliefs and performance beliefs. This, according to Bandura (2019), would result in beliefs about the individual's own competence or capacity to carry out the activity. Analysing the items and responses participants

provided shows that the students emphasize the effort they make when studying, and they report feeling secure and capable of learning the content. This shows a high level of control beliefs and perceived utility, which is in line with previous studies (Rosário et al., 2014). Unsurprisingly, considering the self-regulatory component, students display a need to concentrate and study in calm and controlled spaces, so they can organize the subject matter and understand it, while analysing errors, to continuously improve in their academic performance. Similarly, when considering the answers to the items from the study approaches questionnaire, it is notable the importance students place on the teacher's comments and corrections, their learning from the teaching-learning process itself, and on enjoying studying.

While the students generally believe that the master's program provides knowledge about the subject matter they are studying, which is to be expected, they also believe that they are acquiring competences relating to autonomous work. This autonomy, in combination with their capacity for self-regulation, strengthens the coherence seen in the results and helps their analysis of university learning. This is seen in curriculum development since the implementation of European convergence. This is an effort by European universities to develop competences and, as a priority, the capacity for student autonomy in their studies. Making learners the leaders of their own learning processes and conscious of this is a goal that has been proposed at the European and international level. This a step towards students acquiring problem-solving capacities and critical thinking, which is so necessary (Peters-Burton et al., 2022). In previous studies with postgraduate university students, this correlates significantly with motivation, academic performance, and time dedicated to study (Pereles et al., 2020).

Along this line, the results show that women perceive that they have greater capacities for critical thinking than men do. In addition, they display higher extrinsic goal orientation and levels of test anxiety, as established in previous research, that is linked to deep study approaches and their great capacity for organisation and management (Hammoudi, 2019; Pereles et al., 2020; Torrano & Soria, 2017). For their part, the men have a greater tendency to hold control beliefs about study, which

is understood as the student's perception of how the setting responds to their behaviour and actions (Pintrich, 2003).

With regards to age, the participants who were over 40 years old display higher levels of intrinsic motivation and executive capacities, and favoured deep study approaches more than the younger participants. This shows that as students get older, their engagement intensifies and their acquisition of knowledge is optimized. This agrees with previous research into these components and their relationship with learning (López Paz et al., 2018; Monroy & Hernández-Pina, 2014).

It is apparent that having teaching experience influences motivation for competence development. All the participants in the study who had four or more years of professional experience in the field of education had self-regulation and deep approach capacities. It is notable that this group reports higher levels of development in the communicative, problem-solving, and ethical values competences—fundamental competences for a qualification that provides access to teaching—in contrast with their peers who do not have prior experience.

There is little difference between the location of residence of the students when they join the master's with regards to the variables studied, which has been examined in previous studies showing that this is not a determinant when studying learning processes (Monroy & Hernández-Pina, 2014; Sanfabián Maroto et al., 2014). In these studies, the educational processes, methodologies, and background instructional context were identified as causal factors. In the present research, statistically significant differences are observed in extrinsic motivation and planning of the task that is linked to self-regulation. Humanities is the group with the highest values for these components, and the experimental sciences are most intrinsically oriented towards learning.

Likewise, those who spent more hours per week to doing the task have a deep, autonomous, and self-regulated approach. This is in line with the results obtained for these groups regarding their perception of their own capacities to confront different situations, and how the time they invested enhances their perceived self-efficacy, as Rosário et al. (2014) reported. Similarly, we found that the time spent on studying is related to the deep

approach strategies. This explains the fact that this is strongly determined by motivation, cognition, and engagement with learning (Núñez et al., 2015), because working on a task is not the same as studying the content. There must be an optimal balance between the time and the effort put in (Piñeiro et al., 2019). The same is true for the development of competences such as metacognitive knowledge, reflexive thinking, and problem-solving skills. This is in line with recent studies such as Karaoglan-Yilmaz et al. (2023), which found it was important to direct the time, effort, and quality of training towards knowledge acquisition.

As observed in this study, the students develop competences that involve a commitment to their own learning process. These features are characteristic of students who, in the words of Biggs (1988), take an interest in the learning content and want to understand and enjoy the subject, which are characteristics of a deep approach. In fact, when referring to study approaches, it is increasingly common to encounter research that finds that students who display this tendency invest time in exploring information and linking topics with a professional reality, which implies meaningful learning (Valle-Arias et al., 2017).

Regarding the study variables and their relationship with the components analysed, motivation is more affected by gender, age, and area of knowledge, while self-regulation and study approaches are affected by age, experience, and hours dedicated to the task. Further the area of knowledge is linked to self-regulating components, particularly execution, and the deep learning approaches are related to weekly hours of study. With regards to competence development, the explanatory variables are gender, teaching experience, and hours spent on the task each week.

### LIMITATIONS

We should note some limitations when developing the research regarding the self-report questionnaires. While these showed adequate validity and reliability for the study, and they provided anonymity and permitted quantitative evaluation of the results, the questionnaires did not gather all possible information, which affects the ability to infer theories. It would be necessary to draw on other types of instruments that measure the competences acquired and not just

what respondents report. In this case, as far as the MSLQ is concerned, it would be important to make new adaptations of the questionnaire (Curione & Huertas, 2016). The first version from Rocés et al. (1995) was already showing biases, and for this reason it was considered more appropriate to work with the IPAA and IPE for self-regulation. Although they are not very widespread at present, it would be important to replicate them in other studies due to their potential reliability and validity. Similarly, it would be important to broaden the sample to more master's degrees and different universities, in Spain and other countries, to establish the replicability of the results and any factors, including contextual ones, that might influence the variables studied.

### CONCLUSION

The participating students report being engaged with the task and with their own learning process. In turn they acquire capacities that are relevant to the performance of their professional activity and their academic and personal development. However, it would be interesting to underscore or increase efforts to foster their communicative competence, critical thinking, and problem-solving skills as these will be their main tools as teachers in future.

In this regard, it would be of interest to provide educational programmes or sessions to develop or promote self-regulation in its planning, execution, and evaluation dimensions, along with deep study approaches. Cerezo et al. (2019) identified the importance of reflecting on strategies for self-regulation of learning and training students in them.

As observed in this study, as professional experience increases, there is a greater acquisition and development of competences associated with the course and student performance. It would be interesting to give the students a greater voice by pooling their experiences, research, and aspirations so students and teachers alike can mutually draw on this interchange of knowledge and professional experience.

It is important to continue to research motivational and organisational aspects and characteristics related to the evaluation of the teaching–learning process of university students. This is particularly true for postgraduate students, since postgraduate study is becoming a requirement for academic and

professional advancement and development. It will therefore be necessary to understand and expand the samples to other areas of knowledge and international settings, and to consider follow-up research utilizing additional study variables with specific graduate student populations to review how familial, cultural, economic, social, and educational factors can influence students' study approaches and their development of capacities and competences.

As a result of the COVID-19 pandemic, universities have had to overhaul their instructional processes, their methods and tools (Brika et al., 2022; Isman et al., 2023), and their future plans because the digital perspective is here to stay. Given these circumstances, this study can make direct suggestions for improving the quality of university education, for fostering reflection and analysis by the students themselves, and encouraging the field of research that is emerging in relation to university postgraduate studies, in particular, online studies.

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