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Learning Approaches of First-Year University Students: A mixed-method study in Chile

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Abstract. In Chile, the low retention rates among first-year university students are an issue of concern. Additionally, the sustained growth in enrolment in higher education poses challenges for universities due to inequalities in the students' basic and secondary education, increasing the risk of dropout. This study analysed the learning approaches among first-year students in English and Physical Education at three universities in the La Araucanía region and their impact on academic performance and retention rates. The research was carried out using a mixed methodological design, with a quantitative predominance of sequential order QUANT-qual with three phases, starting with a questionnaire to identify learning approaches, complemented with semi-structured interviews with students and concluding with the triangulation of the results obtained in the first and second phases. In the first phase 114 students participated, 46 males and 68 females, and in the second phase 10 students participated, 4 males and 6 females. The results indicated that participants adopted a deep learning approach with a prevalence of moderate intensity. A superficial learning approach correlates with university retention rates, but there is no significant relationship between learning approaches and academic performance. Qualitative findings showed that deep motivation and superficial learning strategies continuously influence participants when they face academic demands.

Keywords: Learning approaches, Achievement, Retention, Higher education, University students

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1. Introduction

The institutional missions of universities in Chile mostly declare their commitment to providing comprehensive and ethical training to their students, aimed at promoting autonomous and critical thinking, with the purpose of motivating them to participate and actively contribute in various aspects of social life, aligned with their talents, interests and abilities (Law 21.091). To achieve this purpose, higher education institutions implement a variety of educational models that consolidate pedagogical, curricular and management guidelines, contributing in some way to the achievement of the competencies outlined in the graduate profiles of initial teacher training (ITT) (Rodríguez & Artiles, 2017; Ortega, 2017). Likewise, in collaboration with support and accompaniment units, various teaching instances are promoted in order to achieve comprehensive training and, simultaneously, ensure quality learning throughout the educational cycle (Orellana et al., 2019; Tight, 2020).

One of the main challenges for academics is to address both the globality and individuality of students, while providing motivating and engaging training that is relevant to their generational context. This approach goes beyond simply offering quality content (Fong et al., 2017; Martín, 2018). Despite the advances in this area, ITT models have not yet managed to guarantee adequate institutional and curricular integration between teaching careers. This integration is crucial to ensure specialised and pedagogical training that responds to the diversity, needs and learning styles of students (Carvajal et al., 2018; Martínez & Medina, 2019).

At the organisational level, various drawbacks are observed, such as the absence of systematic evaluations to guarantee the achievement of learning (Pavié, 2021), a clear lack of integration in the curricular structure between professional, pedagogical and disciplinary training, incomplete diagnoses about new initiatives and their impacts, resulting in little educational or pedagogical research.

In the light of the changes and challenges of the 21st century, higher education must be approached from the perspective of the learner; this implies transformations in approach in educational activities and in the organisation of learning (Zambrano et al., 2018). In this context, the research highlights the lack of attention to the motivational and strategic learning conditions that characterise ITT during the academic journey. These conditions could have a significant impact on academic performance, either favouring or hindering it (Astika & Sumakul, 2020; Mansfield et al., 2020).

2. Literature Review

2.1 Learning approaches

Learning approaches represent the route that guides an individual when facing an academic activity, mediated by the motivation of the learner and the strategies he or she uses (Biggs, 2012; Guzmán, 2016). This study used the 3P Learning Model proposed by Biggs (1989, 1993) as a conceptual framework. The model proposes analysing student learning from a phenomenological and contextual perspective, emphasising the different interconnected systems that are relevant to learning: the student, the classroom,

the institutional system, and the community (Hernández et al., 2004; Leiva et al., 2020). This ecological system, based on the context in which the students operate, is made up of three main elements: presence, process, and product. Learning approaches serve as a guiding element in characterising university students' learning processes. We should understand this construct as a process that arises from students' perceptions of academic tasks, where contextual and personal elements interconnect (Biggs, 1988; Webster et al., 2009). These approaches are characterised by their flexibility and susceptibility to modification through educational influence.

Biggs et al. (2001) conclude that while deep and surface strategies describe how the learner carries out the task, achievement strategies refer to how the learner organises the time, place, and duration of the task. In this context, these authors modified the Study Process Questionnaire (SPQ) and developed the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F) to assess both deep and surface approaches, incorporating aspects of motivation and learning strategy, simplifying the instrument and the measurement of related variables.

The adoption of a deep approach (Pezoa & Mercado, 2020; Soler et al., 2018; Zamora-Menéndez et al., 2020) is characterised by intrinsic motivation, where the student is genuinely interested in the subject of study and finds satisfaction in understanding and transforming information into knowledge. Following the authors already cited, the congruent strategy involves relating ideas, making arguments, using data to draw conclusions, and connecting new ideas with previous knowledge. The intention is to understand what is being learned. In contrast, adopting a superficial approach is associated with extrinsic motivation, treating tasks as external impositions, driven by a fear of failure, and focusing only on what is necessary to achieve minimum grades. The congruent strategy for this approach is related to learning facts and procedures without making associations, focusing attention on individual elements without integrating the information into a coherent whole.

Learning approaches are considered integrative constructs (Vanthournout et al., 2013), with research focusing on establishing connections among multiple variables, including academic performance, which directly impacts the quality of acquired learning (Fernández & Nieves, 2015; Zuffianó et al., 2013). To enhance the ability to learn, research since the 1950s has emphasised three crucial factors: students' awareness of their preferred learning styles, the selection of purposeful activities or learning strategies for achieving optimal performance, and the metacognitive process or learning approach (García et al., 2016). This metacognitive process serves as a mediating element between the student's motivation and the learning strategy employed. Academic performance is associated with these three factors (Arias & Aparicio, 2020). If students can recognise their preferred learning approach, they can employ congruent strategies that stimulate motivational aspects, consequently enhancing academic performance. The application of these strategies allows students to monitor progress in the learning process and continually evaluate the actions they employ to face academic challenges (Castrillón et al., 2020). The consequences of the strategies used form a series of attributions that can either benefit or hinder their learning (Barca et al., 2019). Factors such as lack of motivation or interest, prior academic weaknesses, dissatisfaction with one's academic

path, and shortcomings in teaching-learning methodologies can impact academic performance (Biggs, 2012; Biggs & Tang, 2007). Hence, a lack of interest may arise from a mismatch between the specific tasks required for professional training and the preferred learning methods. To ensure satisfactory academic progress, it is crucial to establish a close alignment between the two, promoting student engagement in the tasks, activities, and demands associated with their university education (Vera et al., 2019).

2.2 Learning approaches and academic performance

Contemporary studies suggest a close relationship between learning approach and academic performance (Barboyon & Gargallo, 2021). Differences in learning approaches used by students are evident, with a prevalence of the superficial approach and higher performance observed in those adopting a deep approach to learning (Fernández & Nieves, 2015). In this context, we observe that students' learning approaches adapt to the tasks they undertake and the specific contexts they encounter (Barboyon & Gargallo, 2021; Biggs et al., 2001). In fact, the number of students with a deep approach to learning significantly increases as they progress into later grades (Richardson et al., 2012).

Concern about failure and dropping out of university has intensified in recent decades due to the increase in the number of students and the growing interest in improving educational quality. Therefore, identifying the learning approaches that characterise university students will provide information that contributes to improving learning indicators (Trigueros et al., 2020; Zamir y Avraham, 2019).

This research focuses on first-year students in English and Physical Education at universities located in the Araucanía region, characterised by low retention rates and high vulnerability. It is crucial to emphasise that first-year retention is a key measure for evaluating the institutional quality of the country's universities. There are few studies in Chile that address the analysis of learning approaches in university students. However, some empirical works show and support the need to strengthen the practical training of future teachers, emphasise the use of active methodologies to achieve deep learning, and even discuss the systematic use of the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F), an effective and reliable instrument to assess the quality of university education (Marchant et al., 2016; Mercado et al., 2022). These studies reflect the importance of understanding and improving learning approaches in the educational context in Chile. The purpose of this research is to analyse the learning approaches of first-year students in English and Physical Education at three universities in the Araucanía region and the implications for academic performance and retention rates. Simultaneously, the goal is to identify the main motivational and strategic factors distinguishing trainee teachers, thereby determining preferences that foster deep, meaningful, and contextualised learning. This research aimed to answer the question: What are the motivational and strategic learning attributes that characterise pedagogy students who attend universities in the Araucanía region, and how do these interact with contextual factors to promote or inhibit academic performance and university retention? Understanding the conditions that either facilitate or hinder students' persistence and performance in the university system would help to design public policies aimed at developing suitable initiatives for ITT.

3. Materials and methods

3.1 Study design

The study employed a mixed-method approach (Creswell, 2009), with a quantitative predominance of sequential order Quant-Qual, whose purpose is to analyse the motivational and strategic learning attributes of pedagogy students attending universities in the Araucanía region, and how these interact with contextual factors to promote or inhibit academic performance and university retention. In order to achieve a deep understanding of the phenomenon studied, a methodological triangulation design will be used (Bericat, 1998), making it possible to approach the topic from two different perspectives in terms of methods and instruments for collecting information.

3.2 Sample size and participants – quantitative phase

The research was conducted within the Chilean higher education system, specifically in three universities in the Araucanía region—one state-run and two private institutions. Non-probabilistic convenience sampling was used, considering the institutions and pedagogy courses with greater accessibility and proximity to the researcher.

Students who met the following inclusion criteria were considered: a) being of legal age; b) being in the second semester of their first year; c) being duly enrolled in a higher education institution; d) being in one of the selected degree programmes; and e) having academic results from the first semester. Exclusion criteria included: a) being a minor, b) taking subjects at a level of study other than the first year, or c) having previously completed a university course. A total of 114 students participated, 46 males and 68 females, which allowed us to determine the predominant learning approach adopted by English and Physical Education students when faced with an academic task.

Table 1: Summary of participants in the first phase

Gender	**n**	%
Male	46	40,4
Female	68	59,6
Degree		
Physical Education Pedagogy	63	55,3
English Pedagogy	51	44,7
University		
Private University	37	32,5
State University	40	35,1
Private University	37	32,5
Total	**114**	**100**

Note: Age range between 18 and 30 years (M = 20.32; SD = 2.302). Academic performance range between 4.6 and 6.7 (M = 5.8; SD = 0.45).

3.2.1 Setting and data collection

The research was non-experimental and cross-sectional. The measurement of learning approaches among first-year students in English and Physical Education at regional universities took place in 2021, irrespective of the degree course or university type. We submitted formal requests to specialised units within the universities for a report on the

academic performance of each participating student, which included the grade point averages from both the first and second semesters. We also requested an institutional report at the end of the academic year to observe the retention rates achieved by students in the participating degree programmes.

Students were invited to participate voluntarily through a formal letter sent to their email addresses, along with the informed consent form.

3.2.2 Survey development

R-SQP-2F

The study used the revised two-factor study process questionnaire (Biggs et al., 2001) in its Spanish version, conducted by Hernández (2001) and revised in 2012 (Monroy, 2013). The Chilean university context validated the instrument, demonstrating content validity through the judgment of six experts, and internal consistency through confirmatory factor analysis and correlations (Marchant et al., 2016; Vergara-Hernández et al., 2019).

This questionnaire comprised a 20-item Likert scale with two categories of learning approaches: Deep (DA) and Superficial (SA), and a 5-choice range (1: strongly disagree, 2: disagree, 3: neither agree nor disagree, 4: agree, and 5: strongly agree (see Appendix 1)). It included four subscales: Deep Motivation (DM) and Deep Learning Strategy (DLS), Superficial Motivation (SM), and Superficial Learning Strategy (SLS), with each subscale containing five questions. The profile of the scale or approach that scored the highest determined the learning approach adopted by the student. Students who scored equally on both scales, combining elements from each approach, were considered to have adopted a balanced approach. The authors of the original scale (Biggs et al., 2001) assessed the unidimensionality of the scales and subscales by fitting confirmatory unifactorial models. The results indicated a good fit of the unidimensional models for the main scales: Deep Approach (DA) ($\chi2$ (35) = 41.545, p = .207; CFI = .951, RMSEA = .041) and Superficial Approach (SA) ($\chi2$ (31) = 37.615, p = .192; CFI = .959, RMSEA = .043). A similar situation occurred with the subscales: Deep Motivation (DM) ($\chi2$ (5) = 4.211, p = .519; CFI = 1.00, RMSEA = .00); Deep Learning Strategy (DLS) ($\chi2$ (4) = 4.917, p = .296; CFI = .987, RMSEA = 0.45); Superficial Motivation (SM) ($\chi2$ (5) = 8.183, p = 0.146; CFI = .880, RMSEA = 0.75), and Superficial Learning Strategy (SLS) ($\chi2$ (2) = 4.658, p = 0.097; CFI = .962, RMSEA = .108). The coefficients of internal consistency were adequate for the scores on the scales of DA (<0xEE> = .727) and SA (α = .720).

Additionally, we obtained institutional reports that included the variable 'academic performance', defined as the average of cumulative grades achieved by the student, along with university retention rates. These rates corresponded to institutional student persistence percentages in the degree courses studied during the first year. Finally, we calculated university retention as the percentage of students who initially enrolled in the respective degree course in the reference year (2020 cohort) as first-year students and remained in the same institution and generation of origin.

3.2.3 Statistical analysis quantitative phase

We used IBM SPSS Statistics and AMOS for Windows, version 28.0 (IBM Corp., Armonk, NY, USA), for data analysis. We collected data on learning approaches, academic

performance, and college dropout rates. We then analysed the results using the statistical calculations described below. We initially obtained the mean, standard deviation, and frequency distribution for each item. We examined the internal validity of the questionnaire by (1) examining its dimensional structure through confirmatory factor analysis (CFA) and (2) assessing its reliability using Cronbach's alpha internal consistency coefficient. For model fit, the following indices were used: SRMR (Standardized Root Mean Square Residual) < 0.08, relative $\chi 2$ ($\chi 2$/degrees of freedom), and CFI > 0.95. These show that the hypothesised model and the observed data were well aligned. We also explored potential differences across variables such as gender, career, and university.

3.3 Participants – qualitative phase

We administered a semi-structured interview to university students, building it on the dimensions and sub-dimensions of the revised two-factor study questionnaire (Biggs et al., 2001). Students were selected through purposive sampling, based on the previously mentioned inclusion and exclusion criteria. A total of 10 students participated, four males and six females, enabling an in-depth study of the motivations and strategies used by student teachers to face an academic task.

3.3.1 Qualitative instrument

We employed a semi-structured interview (Kvale, 2011) with a battery of questions related to the units of analysis for this purpose. It aimed to uncover the true significance embedded in the interviewees' accounts, shedding light on the meaning hidden within the phenomena linked to the object of study (Rodríguez & Valldeoriola, 2009). We developed an instrument and presented it to experts for item-by-item assessment to validate the content of the semi-structured interview. The selection of categories, sub-categories, and rating criteria associated with the strategic dimension (used to overcome learning situations) and the motivational dimension (behaviours that stimulate changes at the educational level) characterise the instrument.

We employed the semi-structured interview script to organise the conversation, providing specific structure and guidance through the inclusion of topics or a sequence of questions (Kvale, 2011). We prepared a set of guiding questions for each unit of analysis (see Appendix 2).

We conducted virtual data collection using the Google Meet and Zoom platforms. We observed all necessary ethical and methodological safeguards and subsequently transcribed the interviews. We agreed with each student on the order and scheduling of the interviews, specifying the date and time of application, with an estimated duration of 40 to 60 minutes.

3.3.2 Content analysis

We used NVivo software version 10 for the qualitative analysis. This programme facilitated the management of the inductive survey of categories and sub-categories of analysis with the goal of explaining the phenomenon under study. We performed open coding as the initial step in the interpretation process, constituting a descriptive analysis (Flick, 2012). We transcribed individual interviews verbatim, subjecting the information

from these transcripts to an initial coding process to organise the interviews by themes and dimensions, based on the recorded beliefs and representations. We then undertook a second coding process to classify the data into distinct categories and sub-categories, taking into account the students' expressed beliefs and representations, based on their characteristics or conceptual attributes (Strauss & Corbin, 2002).

3.3.3 Ethical approval

The research was approved by the Ethics Committee of the Universidad Católica del Maule, with code Nº27/2021.

4. Results

4.1 Quantitative results, R-SQP-2F

Physical education students were characterised by the adoption of a deep approach (DA), represented by 88.8%. The situation was similar for English students, who adopted a DA, represented by 90.2% of the total number of respondents. Regarding the motivations that characterise Physical Education students, 95.2% of respondents reported an orientation associated with deep motivation (DM). A similar scenario occurred with English language learners, where 86.2% of the respondents defined their main motivation for learning as deep. Physical education students were identified as adopting a superficial learning strategy (SLS), which accounted for 87.3% of the respondents. This condition did not differ in the case of English Education students, as 94.1% of the total respondents indicated the use of SLS when faced with an academic process. Ninety-five percent of student teachers from private universities distinguished themselves by adopting a DA for learning. A similar situation occurred with student teachers from public universities who adopt DA, representing 87.5% of the total number of respondents. When confronted with an academic process, 93.2% of respondents attributed their motivations to DM. A similar scenario occurred with students from public universities, where 87.5% of respondents defined their learning motivations as deep. Finally, students from private universities were characterised by SLS, which accounted for 90.5% of the respondents. This condition is not unique to students from public universities; 90.0% of the total number of respondents stated that they use SLS when faced with an academic process.

In summary, 89.47% of college students surveyed adopt a deep learning approach (DLA). They reported being interested in the academic task, enjoyed carrying it out, looking for inherent meaning, personalising it, making it relevant to their own experience and their real world, integrating the parts or aspects of the task into a whole, and trying to theorise and hypothesise about the task. In terms of the intensity with which they adopted a learning approach, 1.9% of student teachers were characterised by a high level of intensity. Of the total number of respondents, 64.7% reached a medium level of intensity, and 33.3% reached a low level of intensity when faced with an academic task. A minority (10.53%) of the student teachers surveyed adopted a SA. These students perceived the task as a requirement to meet, a necessary imposition to accomplish a specific goal. They viewed the task's parts as separate and unrelated. They were concerned about the time required to complete the task, steering clear of any personal or other meanings the task may hold and relying on rote learning to replicate the superficial aspects of the task. In terms of their approach to learning, 100% of the

students surveyed expressed a medium level of intensity when faced with an academic process. If a student was defined as having intrinsic motivation when doing schoolwork, then they were likely to be DM. The DM subscale and the DA scale were statistically linked to each other, with correlation coefficients of p =.518 and p =.852 (Table 1). This shows that when faced with an academic process, students who show intrinsic motivation (or a high level of interest in the content and its relevance) are more likely to adopt a DA and use the DLS, which promotes maximum comprehension and satisfies the need to learn.

The SM subscale (p = -.299), the SLS subscale (p = -.318), and the scale corresponding to the SA (p = -.348) exhibited a statistically significant correlation with students who use DLS, indicating an inverse relationship. Thus, students who employ DLS, integrating task or content components with each other or content from other disciplines, are less likely to exhibit extrinsic motivation, use SLS, and adopt a SA to a variety of academic challenges. In contrast, when analysing the relationship between DLS and DA, the results showed a statistically significant correlation (p = .889), implying that students who choose to use DLS are significantly more likely to adopt a DA approach to learning. This DA is characterised by intrinsic motivation towards mastering the content of a subject or high-level professional training, along with strategies orientated towards understanding to satisfy curiosity.

Table 2: Correlations of the scales and subscales of the R-SQP-2F questionnaire and academic performance and retention rate

	M	DP	DM	DLS	SM	SLS	DA	SA
Deep Motivation (DM)	18.19	2.40		**.518****	-.078	-.005	**.852****	-.044
Deep Learning Strategy (DLS)	17.54	2.75		-	**-.299****	**-.318****	**.889****	**-.348****
Superficial Motivation (SM)	12.65	2.75		-	-	**.577****	**-.225***	**.876****
Superficial Learning Strategy (SLS)	13.45	3.04		-	-	**-**	**-.197***	**.900****
Deep Approach (DA)	35.73	4.49		-	-	**-**	**-**	**-.237***
Superficial Approach (SA)	26.10	5.15	-	-	-	-	-	-
Academic performance	5.8	0.45	.148	.051	-.080	-.107	.110	-.106
Retention rate	83.83	5.07	.118	.150	-.178	-.170	.155	**-.196***

Note: ***p* < *0.001*; **p* < *0.05*

Superficial Motivation (SM) was significantly related to the DLS subscale (p =.577) and SA (p =.876), in contrast to DM. The findings indicated that students with an extrinsic motivational component were more likely to adopt a SA and use SLS when faced with the formative process. There was also a statistically significant correlation with DA (p = -.225), but in this case it was inverse, meaning that this kind of student was less likely to take on a DA that included always wanting to do well in school, being actively interested in learning (intrinsic motivation), and planning their actions based on their confidence in their ability to learn and their need to do well (competitive motivation).

The results also indicated a statistically significant relationship between the use of SLS the adoption of a SA (p = .900) and, inversely, the adoption of a DA (p = -.197). Students who use these learning strategies when faced with challenges in their studies are more likely to adopt a SA, which can lead to difficulties in achieving academic success. Conversely, this type of student has a low chance of adopting a preferred DA. Finally, the DA showed a statistically significant correlation with the SA (p = -.237), meaning that students who adopted a DA would have limited chances of adopting a SA, as they reflect a high need for achieving academic goals and a strong motivation for success in assigned academic tasks, resulting in high academic performance.

The results demonstrated a heterogeneous landscape regarding the influence of sociodemographic characteristics such as major and gender. We found statistically significant differences in the majors between the DLS (t(112) = 1677, p =.048) and the DA (t(112) = 1915, p =.029). Students in physical education pedagogy had higher scores in the DLS (M = 17.92, SD = 2.81) and the DA (M = 36.44, SD = 4.52) than students in English Education (M = 17.06, SD = 2.63; M = 34.84, SD = 4.33, respectively).

We found statistically significant differences in SM (t(112) = 3.083, p =.001) and SA (t(112) = 1.777, p =.039) based on gender. Male students had higher scores in SM (M = 13.28, SD = 2.79) and SA (M = 26.79, SD = 5.40) than female students (M = 11.72, SD = 2.45; M = 25.07, SD = 4.60). These results reveal that male first-year education students exhibit mechanical retention/memorisation of details and facts/data, often disregarding the inherent structural relationships of the content they are learning, leading to dissatisfaction, boredom, or a certain rejection of the associated work and effort.

There is no relationship between the learning approach (motivations and strategies) adopted by student teachers and the performance achieved in their formative trajectory. There is no statistically significant relationship between the DA scale and the subscales of the revised two-factor study questionnaire, except for the scale corresponding to the SA, which shows a correlation coefficient of (p = -.196), confirming an inverse relationship between the two variables. Students who demonstrate extrinsic motivation and use SLS significantly reduce their chances of progressing in their formative trajectory. Furthermore, first-year students who adopt a SA are characterised by a low cognitive level and low academic effort, which could affect their persistence in higher education.

4.2 Qualitative results

4.2.1 Attributes of deep motivation

The main attributes that characterise the DM of first-year university students in the Araucanía region were a genuine interest in their studies (knowledge activation; academic self-determination; academic expectations; integration of previous experience; disciplinary interest; investigative interest and vocation) and active participation in the teaching-learning process (climate of trust; disclosure of personal experience; active methodology; horizontal methodologies; and teaching role). Knowledge activation expresses the importance of autonomously activating different activities, pleasant, and close spaces where students experience a process of exploration and discovery from a

constructivist perspective, allowing them to build meaningful and contextually coherent learning: "I believe that the most important thing in the search for information and satisfaction is to find something that sparks my interest in what I want to learn, beyond the teacher's guidance, that captivates me and engages me in navigating different academic and everyday scenarios" (EUEFU1-6).

The discourse of the students interviewed highlighted the importance of academic engagement and the need to recognise and internalise the interactions found in the teaching-learning process, all with the clear objective of improving academic performance: "At university, you realise the importance of what you learn for the future. When it comes to certain less appealing subjects, I seek out information that goes beyond the classroom curriculum—something that truly piques my interest and enhances my education" (EUEFU2-4). Respondents highlighted the connection between academic expectations and motivational development, emphasising the importance of personal factors before the learning process. These factors positively integrate the content structure into a broader understanding, irrespective of the discipline studied: "I possess a strong drive to learn and have discovered that I derive pleasure from exploring new subjects" (EUEFU1-1).

Integration of previous experience was a relevant element in explaining students' genuine interest in their studies. It emphasised the importance of integrating the knowledge previously acquired by students in formal, informal, or non-formal learning spaces into the teaching-learning process: "The satisfaction of learning is mainly based on previous experiences. During my childhood, I encountered situations where I desired to learn, and a tutor or guide consistently provided me with the necessary tools to accomplish this goal" (EUEFU1-5).

Disciplinary interest referred to career development: "My main motivations include a personal passion for sport and encouraging others to get involved. I'm particularly interested in sports psychology, inspired by my positive experiences with a team psychologist during my childhood participation in a sports team" (EUEFU1-1).

The importance of the intrinsic research component served as a tool for DM to develop pedagogical and disciplinary competences: "I always explore, read, and look for unknown aspects. In this English context, I actively look for unfamiliar words, contextualise them through reading, and stay aware of ongoing activities" (EUINU1-8).

The vocation highlighted the presence of feelings related to being a teacher, giving the student-in-training a certain closeness to teaching and stimulating the discovery of certain skills related to teaching: "I enjoy learning, and I want to share the knowledge acquired in my training process with future generations, hoping for a different experience from mine in the past" (EUEFU1-6).

Active participation in the teaching-learning process was linked to a climate of trust, where the student felt safe to express doubts, questions, or needed answers on a specific topic: "Some teachers create a close, effective, and trusting climate by encouraging our active participation in class, asking questions, and consulting on the topics covered"

(EUEFU1-1).

The teacher and students exchanged personal experiences about the significance of deepening and assimilating the subject matter, establishing a mutual connection in this domain: "The teacher shares experiences based on pedagogy and the current subject, placing us in different contexts and scenarios. This dynamic approach increases our enjoyment of learning and active participation" (EUEFU1-6).

With the use of active methods, motivation arose from the characteristics of certain subjects in the career, highlighting the practical component and promoting spaces of spontaneous participation in the development of subjects or lectures: "In the beginning, the dynamics were very theoretical, emphasising the absorption and regurgitation of information. Now there is a shift as the teacher introduces clinical cases, real situations and contexts, encouraging active participation, questions, and suggestions" (EUEFU1-6).

The use of horizontal methodologies highlighted the importance of focusing the methodological strategies used in developing teaching on the student and the process of discovery from a constructivist perspective, where the academic and the student co-construct knowledge: "Some teachers use a different methodology, actively involving students by saying, for example, 'Explain this point to me' or 'Share your perspective on it'. This approach encourages the students' involvement" (EUEFU1-3).

Finally, the role of the teacher was highlighted as one of the fundamental elements in stimulating students' motivation and participation, emphasising the importance of the teacher as a generator of motivational strategies to encourage participation in the classroom: "I think the teacher's role is crucial as a guide, providing tools and guidance. It is up to you to decide how to use these tools. Beyond the absorption of knowledge, the teacher sets you on a path and presents the content in a way that makes the journey enjoyable" (EUEFU1-6).

4.2.2 Attributes of deep learning strategies

We distinguished three important elements in DLS, which pertain to the strategies students employ when confronted with an academic task. The first is the review of complementary material, which involves everyday knowledge; disciplinary curiosity; challenge and feedback process. In the second, the challenge lies in the assimilation of the content, specifically in terms of methodological coherence and communication channels, and in the third, the use of time outside the classroom comes into play, specifically in critical thinking and collaborative work. From the interviewees' accounts, the importance of linking theoretical content to everyday situations was evident, providing students with a starting point for exploration, problem solving, and knowledge integration: "What catches my attention the most is bringing concepts into reality. For example, with a 9-year-old niece, if there's a topic about children's motor development and basic motor skills, I try to apply it and relate it to her experiences" (EUEFU1-5).The importance of the level of curiosity that distinguished the students in training was the use of strategies that arose from this type of motivation and were used to satisfy the level of curiosity about the content dealt with in disciplinary subjects:

"Teachers cover the material, but sometimes things are left open, and I prefer to look for answers on my own rather than asking in the same class" (EUEFU1-5).

The students interviewed emphasised the importance of creating spaces for dialogue, reflection, and questioning based on the training process, imagining learning as a challenge that brings satisfaction in overcoming and progressing in their academic career: "My focus this year is different. I want to enjoy the training process, regardless of the teachers or the subjects. It is my responsibility to make it more interesting. Therefore, I will read all the texts, watch the videos, and identify the difficulties" (EUINU2-7).

The subcategory feedback process, which highlighted the importance of creating spaces for dialogue, interaction, and continuous guidance between the student and the teacher, significantly reduced existing gaps in the content covered in the subject curriculum. In addressing gaps and questions related to the curriculum, the teacher and student valued dialogue and systematic communication: "I sometimes send emails to teachers to get feedback on things I don't understand well. The discussion process with the teacher is crucial for me" (EUEFU1-5).

When a student struggled to internalise content, the teacher emphasised the communication channels he uses to teach his subjects. This underscored the significance of fostering open lines of communication between the teacher and the student, ensuring ongoing support throughout their professional training. "A common issue is a lack of communication with the teacher" (EUEFU1-6). Curricular coherence demonstrates how important it is to follow a methodological sequence in how you teach and develop your lessons, as well as the logical and harmonious sequence of your study plans and lessons: "A main problem arises when teachers teach a lot of material in a short amount of time" (EUEFU2-4).

The use of out-of-class time emphasised the development of students' critical thinking. This aspect stressed the importance of questioning and validating one's own knowledge as opposed to the presentation of educational content: "In general, I like to reflect and question the subject or the thoughts of my classmates. Motivation depends more on me than on what the teachers provide" (EUINU1-9). Collaborative work underscored the importance of creating environments that encourage students to engage in processes of discovery through group work, thereby stimulating interaction, dialogue, and reflection: "I am quite familiar with some of my classmates, which is why we frequently gather to study and spend study hours together. My classmates' support is important in this process" (EUEFU1-2). In line with the above, autonomous learning and self-assessment are crucial for the development of critical thinking. It is suggested that students should have an active role in their education, where their motivation and ability to question content are more decisive than the traditional educational approach of teachers. This may also point to a need for educational institutions to foster an environment that values and encourages curiosity, critical reflection and collaborative work in students, rather than relying solely on direct teaching.

4.2.3 Attributes of superficial motivation

We identified subcategories related to socio-family background, self-confidence in

learning, and self-regulation within the category of minimising academic effort. Socio-family background, which considers the significance of the family nucleus surrounding the student in establishing the foundations that will support the structure and educational climate, was crucial: "Beyond labelling them as lazy or mediocre, I believe that their challenges stem from complex situations such as problems at home, lack of support for their studies, parallel work, and other factors" (EUINU2-7).

The students interviewed emphasised their ability to organise their academic responsibilities: "There are generally negligent students who leave everything to the last minute and sometimes do not dedicate enough time to study, revise, or organise themselves properly with regard to the academic workload in their training period" (EUEFU1-5).

Finally, there was an element related to self-confidence in learning, which emphasised the importance of taking actions that are conducive to achieving autonomy and adaptive mechanisms for learning, assuming a mature role in the face of an academic process: "I think it's the demotivation and uncertainty about their abilities or skills. For example, I have classmates who are very reflective and like to contribute, but at some point they get demotivated, which leads them to finish the courses somehow" (EUINU1-9). Self-confidence played a crucial role in students' academic engagement and success. Lack of motivation and uncertainty about their abilities can negatively affect participation and performance. Furthermore, it was suggested that educational spaces should foster self-confidence and autonomy, providing support for students to recognise and develop their abilities. At the same time, it could also indicate that it was essential to implement strategies that help students manage their emotions and perceptions about learning, so that they can assume a more active and conscious role in their educational process.

4.2.4 Attributes of superficial learning strategies

This question created a subcategory related to the subject area, emphasising the importance of identifying the strategies needed to acquire new knowledge, skills, and attitudes specific to the subject area or general education. In this sense, the teacher assumed a highly relevant role, connecting the subject's development to the approach they adopted in the classroom: "It depends on the subject and the teacher's approach. For instance, last year in Human Learning and Cognitive Factors, I reviewed presentations, articles, and related research to memorise relevant elements, recognising the need for more research" (EUEFU1-3).

5. Discussion

This research sought to develop an understanding of the learning process of university students, in this case, through the characteristic attributes of first-year Physical Education and English Education students from three universities in the La Araucanía region. We explored how these characteristics affect variables such as academic performance and university retention rates. The motivations that characterise students in Physical Education showed a deep orientation towards learning; a similar scenario occurred with students in English Education. When faced with academic processes, the predominant learning strategies used by Physical Education students were characterised by SLS, a condition that also applied to English Education students. As a result, first-

year English and Physical Education students in La Araucanía used a DA with strong motivation to learn (real concern and active participation) and SLS (mechanisation and strict evaluation) to deal with different academic challenges. It is important to emphasise that learning approaches are not definitive or permanent; a student can change their learning approach based on stimuli from the educational context and internal conditions (Leiva et al., 2020).

While quantitative results determined the adoption of a DA by students from both disciplines, qualitative results descriptively complemented the motivational and strategic characteristics of the study participants. These findings provide information for the implementation of a wide range of pedagogical, curricular, and evaluative mechanisms aimed at improving the educational and formative process. The results showed a clear predominance towards DA, which invalidates the hypothesis that university students adopt a SA. These results are consistent with the findings of other research studies (Astika & Sumakul, 2020; Bana & Rizvi, 2019; Mansfield et al., 2020), adding that students who show this tendency may also use SLS simply because the learning task requires it.

Interestingly, students who adopt a SA, even when the task requires the use of DLS, do not end up using them, unlike students who adopt a DA (Díaz-García et al., 2020). This apparent contradiction only highlights the high level of adaptation that characterises students who adopt DA, emphasising qualities such as autonomy, self-efficacy, and discipline. Furthermore, the results show that students adopting a DA are characterised by a more frequent and effective use of self-regulatory strategies (Bana & Rizvi, 2019; Martínez & Medina, 2019). These motivational processes lead students to feel competent, confident in their abilities, and responsible for their learning process. Students who regulate their learning often have subject mastery, can differentiate information, and actively and effectively search their memory before performing a task. They are also familiar with and use cognitive strategies to organise and integrate new and previous information (García et al., 2016), which directly contributes to problem solving in their professional and educational training.

We identified a small percentage of students in English and Physical Education with a tendency towards SM which indicates that university students with SM tend to reduce their academic effort when faced with a task (Zamora-Menéndez et al., 2020) and tend to mechanise their knowledge owing to the standardisation of the educational system and its institutional processes, thereby decreasing their chances of academic success. The results are conclusive in determining the use of DLS; students who use DLS when faced with an academic task are characterised by a systematic review of additional material and a considerable amount of time spent outside of class (Barboyon & Gargallo, 2021; Díaz-García et al., 2020). A smaller number of the students in the study had SA, which means they had only superficial motivation to learn (minimal academic effort, mechanised knowledge), and when they had trouble in school, they used DLS (reviewing material, spending extra time outside of class) to get help. Although the results indicated that a smaller percentage of students in both disciplines adopted a SA (application of the two-factor study process questionnaire), the qualitative results descriptively complemented the motivational and strategic characteristics that

characterised these study participants, providing information for the application of a wide range of pedagogical, curricular, and evaluative mechanisms aimed at improving the educational and formative process.

The visualisation of outcomes that are completely different from those referred to in this study complicates the improvement of the quality of learned learning in higher education. Studies show that first-year university students tend to use a SA that prioritises the use of memorisation and repetition strategies to assimilate information (Freiberg-Hoffmann et al., 2017). Students who preferentially use a SA would approach their study tasks and academic work by memorising content, even if they do not understand it, and try to pass subjects with minimal effort (Barca et al., 2019). Other studies disagree with this research's findings, stating that a SA is more entrenched than a deep one in the first years of university (Maquilón et al., 2016), using strategies and motivations associated with this approach more consistently. This means that students who adopted a SA are unlikely to move away from it as they progress in their educational career. When faced with an academic task, university students on the DM subscale are characterised by a genuine concern for their studies and active participation in the teaching-learning process. In this regard, the literature is consistent with the findings of this study (Jiménez et al., 2020; Rodríguez et al., 2017), highlighting the value of using active teaching methods such as cooperative work, case studies, problem solving, and practical exercises. In some cases, fear, authority, and academic rigidity hinder the students' role in knowledge construction, which these methods stimulate (Ortiz, 2015). As a result, a teacher who promotes discovery from a constructivist perspective and demonstrates an analytical, reflective, and critical attitude towards pedagogical work will effectively mediate students in their personal search for cognitive and affective maturity in this social learning dynamic (Brady, 2020; Ribosa, 2020; Muñoz-Vidal et al., 2023).

The results are surprising and unambiguous in that, regardless of the learning approach adopted by students, the correlations did not show significant differences between academic performance and learning approach. This is in line with the criteria of Biggs (2001), who argues for a moderate relationship between learning approaches and performance (López & López, 2013). This finding refuted the second research hypothesis, asserting a significant relationship between university students' learning approaches and their achieved academic performance. In this sense, the analysis of learning approaches and their relationship to academic performance yields contradictory or inconclusive results. However, a significant number of studies show a trend in favour of the adoption of DA as a positive predictor of academic success (Ramudo et al., 2017; Fryer & Vermunt, 2018; Barca et al., 2019; Zárate et al., 2021; Muñoz-Vidal & Beltrán-Véliz, 2021). University students in the La Araucanía region believe that it is possible to pass subjects without delving into the content, relying on memorisation without understanding and with little time commitment (SLS). The high percentage of students who apply the DA with medium and low intensity contradicts most of the current research.

Given the aforementioned context, this study adds a compelling element to the educational process by pinpointing the characteristics and elements that enhance

university students' performance (Tinto, 2017). The objective is clear: to promote the development of innovative strategies, motivations and methodologies that minimise the negative effects of inadequate learning strategies and the lack of student motivation towards academic tasks. As can be seen in the predictive models of academic performance presented in this research, using a generalised linear model, higher education institutions stand out as one of the factors predicting the academic performance of first-year teacher education students in the La Araucanía region. The educational model, which places the student at the centre of the teaching-learning process, could explain this difference between institutions. This model orients educational activities to the characteristics and needs of the students and uses active-participatory methodologies that promote the achievement of learning outcomes, allowing students to feel comfortable in a space of horizontal communication and progress in the different levels of their career. Recent research supports the existence of this teaching model (Lewthwaite & Nind, 2016; Motjolopane, 2021).

However, traditional teaching practices persist among university teachers, practices which emphasise lectures, mechanisation and memorisation of knowledge, highlighting the need to improve the quality of teaching and, consequently, of learning. The findings indicate that university students can enhance the quality of teaching and learning by adopting and implementing these guidelines, leading to improved academic performance (Pezoa & Mercado, 2020). Furthermore, this educational model prioritises the use of active participatory methodologies as a means of achieving learning outcomes. In this regard, there is agreement in the research literature (Jiménez et al., 2020; Rodríguez et al., 2017), which emphasises the use of sequential and gradual principles, problematisation of teaching, meaning, relevance, reflection, and collaborative learning, and the use of technological resources to support teaching. Evidence also shows that innovation with active methodologies is highly necessary to meet the new challenges of higher education (Ibarra & Benítez, 2019). This is in line with the narratives of academics and students, highlighting the relationship between professors and students as one of the decisive factors in the co-design of transformative educational practices that invite knowledge acquisition through interaction (Marín & Villagrá, 2020), promoting the adoption of a DA.

This pedagogical model, which characterises one of the universities in the region of La Araucanía and which, according to statistical analyses, was considered a predictor of academic performance, approaches assessment as a process aimed at gathering qualitative information about the level of learning. The aim is to make timely decisions, redirect pedagogical strategies, and provide feedback to students, reducing the likelihood of academic failure (Muñoz et al., 2022; Castro et al., 2021; Tinto, 2017). The narratives of academics and students as DLS characterise these elements as clear institutional teaching processes that foster self-regulation (organisation), disciplinary curiosity, autonomy, critical thinking, and a climate of trust, gradually displacing the mechanisation of knowledge. Finally, one of the models that predicts academic performance backs up the idea that choosing one learning style over another (deep or superficial) does not change the chances of continuing to move forward in the formative trajectory (López & López, 2013). What matters is the type of educational institution and the teaching mechanisms (pedagogical, curricular) that identify its educational model

(Chong, 2017). The clarity of pedagogical guidelines constitutes a set of principles and orientations that guide the pedagogical work of academics, highlighting the mediating teacher, effective didactics, the learning environment, and assessment for learning, and determining the specific context in which students are involved (Osher et al., 2020).

The results of this research show a weak correlation between the two variables. On the other hand, there are significant differences between the SA and the university retention rate, which is in line with other studies on the subject (Zamora-Menéndez et al., 2020), showing that students who demonstrate extrinsic motivation and use SLS significantly reduce their chances of progressing in their learning trajectory. This invalidates the third research hypothesis, which states that students' learning approaches are significantly related to retention rates. At the same time, the predictive models presented in this research highlight the role of the educational institution as one of the factors that significantly predicts the retention of first-year teacher education students in the region of La Araucanía. The educational model that characterises this institution declares pedagogical and curricular guidelines associated with a constructivist paradigm (Ortiz, 2015; Vargas & Acuña, 2020). This paradigm recognises that learning lies in the attribution of meanings that individuals create from their own experiences, understanding the construction of knowledge as personal interpretations of reality based on individual and collective experiences. This would have implications for progress and academic effectiveness.

At the same time, the model shows that first-year Physical Education students are more likely to persist in their studies. Studies suggest that the adoption of a DA involves motives and strategies that vary according to the discipline. So, the difference between the two teaching methods may be that physical education professionals (Ojeda-Nahuelcura et al., 2022) have a wide range of skills and are flexible in their roles. They also have personality traits that are specific to their job, like being spontaneous, daring, and creative, which are not common in other jobs (Hernández et al., 2020). There are also studies that state that the discipline of physical education is characterised by a specific pedagogical training (Salgueiro, 2021). This training aligns concepts from critical pedagogy and constructivist approaches, which emphasise the development of socialising learning experiences (cooperation, collaboration, discussion, and dialogue) and the transfer of students' cognitive structures and scientific knowledge to the teacher. Finally, one of the predictive models of retention suggests that first-year students who adopt a SA in the face of an academic process have a lower probability of remaining in education than those who prefer a DA. These results are consistent with the literature consulted for this study (Martínez & Medina, 2019; Ramudo et al., 2017), which shows that students who seek meaning integrate knowledge with their own experience, use learning strategies that allow for maximum understanding, high autonomy, and commitment and interest in the content learnt in pedagogy training, promote the acquisition of meaningful learning (Sevilla, 2020), which has a significant impact on the retention of first-year students (Arhuiri, 2021). Consequently, students of English and Physical Education who adopt a DA when facing an academic process have a greater likelihood of continuing their pedagogical studies in the first year.

6. Conclusions

The quantitative results of this study provide evidence of the predominant learning approach of first-year English and Physical Education students from three universities in the La Araucanía region. We observed that students, regardless of the academic challenges they face in their educational journey, adopt a medium-intensity DA, characterised by DM towards learning and SLS. Apparently, the adoption of either a low or a high DA does not reduce the likelihood of further progress in the educational trajectory of first-year students in English and Physical Education. The results indicate a weak correlation between learning approaches and retention rates for first-year English and PE students. However, there was a significant relationship between SA and retention rates, demonstrating that students who exhibit extrinsic motivation and use SLS significantly reduce their chances of continuing their educational journey. The results show that first-year students who adopt a SA when faced with an academic process are less likely to remain in education than those who adopt a DA. This means that students who express a search for meaning, integrate knowledge with personal experience, use learning strategies that allow for maximum understanding, demonstrate a high degree of autonomy, and show commitment and interest in the pedagogical content are more likely to continue their first year of pedagogy studies at university. We identified the characteristic attributes of first-year English and Physical Education students through their discourse, identifying their deep motivations and superficial learning strategies in the context of presence, process, and product.

We recommend centering the student in the teaching-learning process by customising educational activities to their needs and using active, participatory methods. This approach fosters comfortable progression through academic stages in a collaborative environment. It enhances curricular coherence, engages students' disciplinary interests, and positions teachers as mediators in learning. Evaluation should be viewed as essential for gathering quality information on student progress, enabling timely adjustments to teaching strategies and reducing academic failure, and also for implementing principles of sequence, meaningfulness, reflection, and collaborative learning, while leveraging technology to enrich education.

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Appendix 1

Two-Factor Study Process Questionnaire.

Approach		Items
Deep Approach	Deep Motivation	1. Sometimes, studying gives me a feeling of deep personal satisfaction. 5. I feel that almost any content could be interesting if I dedicate time to work on it. 9. I believe that studying the content of a subject can be, at times, as exciting as a good novel or movie. 13. I work hard on subjects because I find the content interesting. 17. I attend most classes with questions in mind for which I seek answers.
	Deep Learning Strategy	2. When I must study a subject, I am not satisfied until I dedicate enough time to form my own conclusions. 6. I often spend extra time seeking additional information on subjects because I find them interesting. 10. I self-assess my knowledge of relevant topics in the subjects until I fully understand them. 14. I dedicate a significant portion of my free time to seeking information about interesting topics covered in the subjects. 18. I try to review most recommended study materials for class subjects.
Superficial Approach	Superficial Motivation	3. My goal is to pass the subject with the least amount of effort. 7. When I perceive that the subject is not very interesting, I work as little as possible. 11. I can pass most subject assessments by memorizing the most relevant topics rather than trying to understand them thoroughly. 15. I believe that in subjects, studying content in depth is not very useful; it confuses and wastes time when all that is needed is a general knowledge of the content. 19. It makes little sense for me to study content that probably won't be considered in subject assessments.
	Superficial Learning Strategy	4. I only study the material covered in class or what is detailed in the subject's curriculum seriously. 8. I learn some things from subjects by reviewing them over and over until I know them by heart, even if I don't understand them. 12. In subjects, I generally limit myself to studying only what the teacher establishes because I believe doing extra work is unnecessary.

		16. Subjects' teachers should not expect students to spend much time studying content that is known not to be considered in assessments. 20. The best way to pass subjects is to try to memorize the answers to questions that are likely to be included in assessments.

Appendix 2

Semi-structured interview questions for students

Dimensions	Questions
Deep Motivation	1. Can you argue, explain, or share some reasons why you find studying or delving into certain content, activities, or tasks in a subject enjoyable or pleasurable? 2. Can you tell me or share your perspective on the reasons that may explain why you approach certain content, activities, or tasks in a subject with enthusiasm and stimulation? 3. What factors determine that you attend class with questions, inquiries, or concerns regarding the content, activities, or tasks covered in a subject?
Deep Learning Strategy	1. What actions do you believe stimulate you to review or explore supplementary material or readings recommended by the professor when delving into specific content, activities, or tasks in a subject? 2. What are the typical challenges that may explain why you require a longer period to internalize certain content, activities, or tasks in a subject, make them your own, and form an opinion on the topic? 3. What characterizes you when you decide to dedicate extra-curricular time (outside of class hours) to select or gather information that you find interesting and relevant to the content, activities, or tasks addressed in a subject?
Superficial Motivation	1. What do you think characterizes you when, facing an academic process, you choose to pass a subject by limiting your effort to the minimum? 2. What factors influence your decision to pass most of your exams or assessments by memorizing key elements associated with the content covered in a subject, without the need to fully comprehend and internalize them? 3. What could be some reasons for not considering it relevant or necessary to address and delve into those contents, activities, or tasks that probably will not be considered in the exams or assessments related to a subject?
Superficial Learning Strategy	1. What do you believe is the reason why you limit yourself to delving into only the content, activities, or tasks covered in the development of a class, excluding others that could provide you with a holistic and meaningful understanding of a subject? 2. Can you share or express your perspective on the reasons that

	might explain why you see memorizing predetermined answers to questions as the best way to pass an exam or assessment, considering them more likely to be present in this learning scenario? 3. Can you share or express your perspective on the reasons that might explain why you choose to use learning strategies oriented towards mechanization, such as repetition and memorization, regardless of fully comprehending or assimilating the content, activities, or tasks of a subject?