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Improving learning outcomes through the analysis of assessment practice

Mejorando los resultados de aprendizaje mediante el análisis de la práctica evaluativa

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Abstract

Comprehensible and useful learning outcomes for both teaching staff and students are essential to improving teaching and learning and ensuring its alignment with the aims of higher education. This study analyses and assesses the design of learning outcomes through an examination of official degree programme documentation and the perceptions of teaching staff, programme coordinators, and students. An exploratory sequential design was used to develop and validate the data collection instruments. Subsequently, a multiple convergent design was employed to analyse the official documentation of 89 master's degree programmes in the social sciences across six universities, 416 questionnaires completed by teaching staff, 60 interviews with master's programme coordinators, and 14 focus groups involving 66 students. The findings show a predominance of learning outcomes at an intermediate cognitive level, associated with procedural knowledge and relational structures. They also reveal ambiguous wording, some lack of conceptual understanding, and the limited integration of learning outcomes into teaching practice. Finally, the findings indicate a need for teacher training in the design of learning outcomes to improve their clarity, comprehensibility, and curricular coherence, as well as to facilitate the continuous improvement of academic programmes.

Keywords: academic achievement; educational assessment; teacher education; curriculum design.

Resumen

Unos resultados de aprendizaje comprensibles y útiles, para profesorado y estudiantado, son esenciales para mejorar el proceso de enseñanza-aprendizaje y que este sea coherente con los fines de la educación superior. Este estudio se centra en analizar y valorar el diseño de los resultados de aprendizaje a partir del análisis de las memorias de los títulos y las percepciones de profesorado, coordinaciones y estudiantado. Se utilizó un diseño secuencial exploratorio para el diseño y validación de los instrumentos de recogida de información. Posteriormente, mediante un diseño convergente múltiple, se analizaron 89 memorias de títulos de máster (Ciencias Sociales) de seis universidades, 416 cuestionarios de profesorado, 60 entrevistas a coordinaciones de máster y 14 grupos focales con 66 estudiantes. Se evidencia que predominan los resultados de aprendizaje de un nivel cognitivo medio, vinculados al conocimiento procedimental y a estructuras relacionales. Asimismo, se manifiesta redacción ambigua, cierto desconocimiento conceptual y una relativa integración de los resultados de aprendizaje en la práctica

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docente. Finalmente, se detecta necesidad de formación docente en el diseño de los resultados de aprendizaje para mejorar su claridad, comprensibilidad y coherencia curricular, así como facilitar los procesos de mejora continua de los títulos académicos.

Palabras clave: rendimiento académico; evaluación de la educación; formación de docentes; plan de estudios.

Introduction

For several decades now, the level of achievement attained in learning outcomes (LO) has been used as evidence in the evaluation of educational institutions and institutional accountability (Swarat et al., 2017). Furthermore, the European Qualifications Framework (EQF), the Spanish Qualifications Framework for Higher Education (MECES) and Royal Decree 822/2021 on the organisation of university education call for a necessary and coherent design of university degrees in which learning outcomes play a central role.

Bone and Ross (2021) argue that, in order to successfully implement an AR-based curriculum, pedagogical expertise is required across all disciplines, as well as diplomatic skills at the various hierarchical levels of the organisation, necessitating coherence between them (Biggs et al., 2022). Although the concept of AR is widely accepted, progress towards AR-based learning is slow (González-Ferreras and Wagenaar, 2023); at times, it remains merely a bureaucratic requirement (Havnes and Prøitz, 2016).

Recent studies highlight weaknesses in the design and planning of courses with regard to the learning outcomes approach in the university curriculum (Rodríguez-Gómez et al., 2025), as well as difficulties in drafting high-quality learning outcomes (Schoepp, 2019). In this regard, Duran-Chinchilla (2024) highlights a lack of national and international research on the implementation of learning outcomes in higher education, noting that there is a concurrent lack of technical and cognitive expertise in this field.

The aim of this study is to assess the design, scope and types of project-based assessments (PBAs) by analysing degree programme reports, as well as to analyse assessment practices from the perspectives of teaching staff, programme coordinators and students.

Literature review

Learning Outcomes in Higher Education: From Design to Practice

Learning outcomes are understood as statements that set out what students are expected to know, understand, use, perform, demonstrate or apply, and to evidence through achievements or performance in a specific context, reaching certain levels of attainment upon completion of a learning process (Rodríguez-Gómez and Ibarra-Sáiz, 2022). Learning outcomes, which students must demonstrate at the end of a programme or course, based on the constructive alignment model (Biggs et al., 2022), have become a key element in guiding the teaching and learning process, assessment and curriculum development in higher education (Rao, 2020).

Erikson and Erikson (2019) highlight the importance of empirical research into how teachers and pupils interpret RA in their own assessment practice, in order to verify whether theoretical assumptions align with pupils' actual experiences. However, there is little evidence on this matter (Dobbins et al., 2016; Erikson and Erikson, 2019; Hadjianastasis, 2017), which makes it difficult to understand the effects of incorporating AR at the various levels of curriculum planning and development within higher education programmes (Gaitán-Soto et al., 2025). The study conducted by Hadjianastasis (2017) revealed a lack of awareness of the principles underpinning AR, as well as a lack of clarity regarding its precise function. With regard to students, Kumpas-Lenk et al. (2018) emphasise the need to gather their perceptions, as they are the intended recipients of the learning process; it appears that the various elements of constructive alignment have a greater influence on the direction of their learning than the learning outcomes themselves (Hailikari et al., 2022).

Despite the abundant literature on LOs and guidance on how to draft them, studies based on content and textual analysis of university syllabuses and teaching guides (Álvarez-Pérez and López-Aguilar, 2018; Bone and Ross, 2021) reveal weaknesses in the design of high-quality LOs. Responsibility for formulating these is placed on academics, who renegotiate their meaning based on their own conception of learning (Prøitz et al., 2017). Dobbins et al. (2016) highlight the importance of reconceptualising the adoption of an AR approach that empowers academic staff to understand and engage with ARs, thereby supporting a student-centred perspective. Authors such as Biggs et al. (2022) and Rodríguez-Gómez et al. (2025) advocate designing courses from the students' perspective, using

assessment as a starting point to shape and guide learning (Ajjawi et al., 2022; Boud, 2020), fostering engagement and highlighting students' achievements (Coates et al., 2021).

Kumpas-Lenk et al. (2018) point to the persistence of traditional assessment practices, masked under the guise of student-centred learning and RA design without a conceptual shift in thinking. However, Villarroel et al. (2018) highlight that there is a shift towards a more complex culture that seeks the comprehensive assessment of higher-order knowledge and skills. In this regard, Ibarra-Sáiz and Rodríguez-Gómez (2019), in contrast to assessment conceived merely as grading—lacking quality criteria—propose the 'assessment as learning' approach: a process that supports metacognition, guiding students to become critical evaluators whilst developing their evaluative judgement and self-regulation.

RA as facilitators of deep learning

University students demonstrate greater motivation, satisfaction and commitment to achieving those learning outcomes designed at the highest levels of cognitive demand (Kumpas-Lenk et al., 2018). However, there remains a perception that rote learning continues to play a predominant role (Muñoz-Cantero et al., 2023), which runs counter to the aspiration to educate autonomous, reflective, critical and analytical individuals (Siarova et al., 2017). In this context, assessment should provide students with the tools and opportunities necessary to learn autonomously and strengthen their evaluative judgement (Boud et al., 2018).

Teaching based on constructive alignment aims to foster deep learning amongst students, promoting meaningful understanding and higher-quality critical thinking (Hailikari et al., 2022). Along the same lines, the concept of intellectual rigour developed by Gore et al. (2009) positions assessment as a means of generating a deep understanding of fundamental concepts, skills and ideas. Achieving this objective requires students to take an active role in constructing their own knowledge and to engage in higher-order thinking processes.

To foster this type of knowledge, the design and evaluation of AR are facilitated by the use of educational taxonomies, understood as frameworks that provide a hierarchical classification of the levels of development of cognitive processes and knowledge (Gamboa-Solano et al., 2023). Among the most widely used taxonomies is Bloom's Taxonomy (Rao, 2020), which is frequently employed to classify action verbs into specific levels of the cognitive domain (Bone and Ross, 2021; Hadjianastasis, 2017; Kumpas-Lenk et al., 2018). The results of this research indicate that RAs are often associated with a low cognitive level and exhibit deficiencies in their drafting, reflecting significant limitations in their correct formulation (Rodríguez-Gómez et al., 2025). Furthermore, this study draws on the Revised Bloom's Taxonomy (Anderson and Krathwohl, 2001), which has been used in other studies as a framework for drafting learning outcomes (Gamboa-Solano et al., 2023), as well as the SOLO (*Structure of Observed Learning Outcomes*) Taxonomy developed by Biggs and Collis (1982) and used in studies such as that by Martínez-Vergara and Flórez-Nisperuza (2025).

Objectives and research questions

This research is conceived as a synthesis of the overall findings on LOs within the framework of the FLOASS Project. Its distinctive value lies in a holistic approach that simultaneously triangulates the perspectives of all key stakeholders within the university ecosystem (coordinators, teaching staff and students). Furthermore, the study achieves a high degree of representativeness by systematically incorporating Master's degree programmes across three fields of the social sciences (Economics, Communication and Education) at six public universities, thereby consolidating the transferability and consistency of its findings within the context of the European Higher Education Area.

To achieve the aim of this study, the following objectives and research questions are set out:

O1. To assess the scope and types of learning outcomes specified in the verified programme descriptions of Master's degrees in the Social Sciences.

C1.1. What are the predominant cognitive processes and types of knowledge in the learning outcomes?

C1.2. What knowledge structures can be inferred from the learning outcomes?

O2. To analyse assessment practice through the perceptions of programme coordinators, teaching staff and students on Master's degree programmes in the Social Sciences.

C2.1. What is the perception of teaching staff and students regarding their assessment practice in relation to the RA?

O3. To analyse whether differences in RA are established depending on the context.

C3.1. Are there any significant differences depending on the context?

Methodology

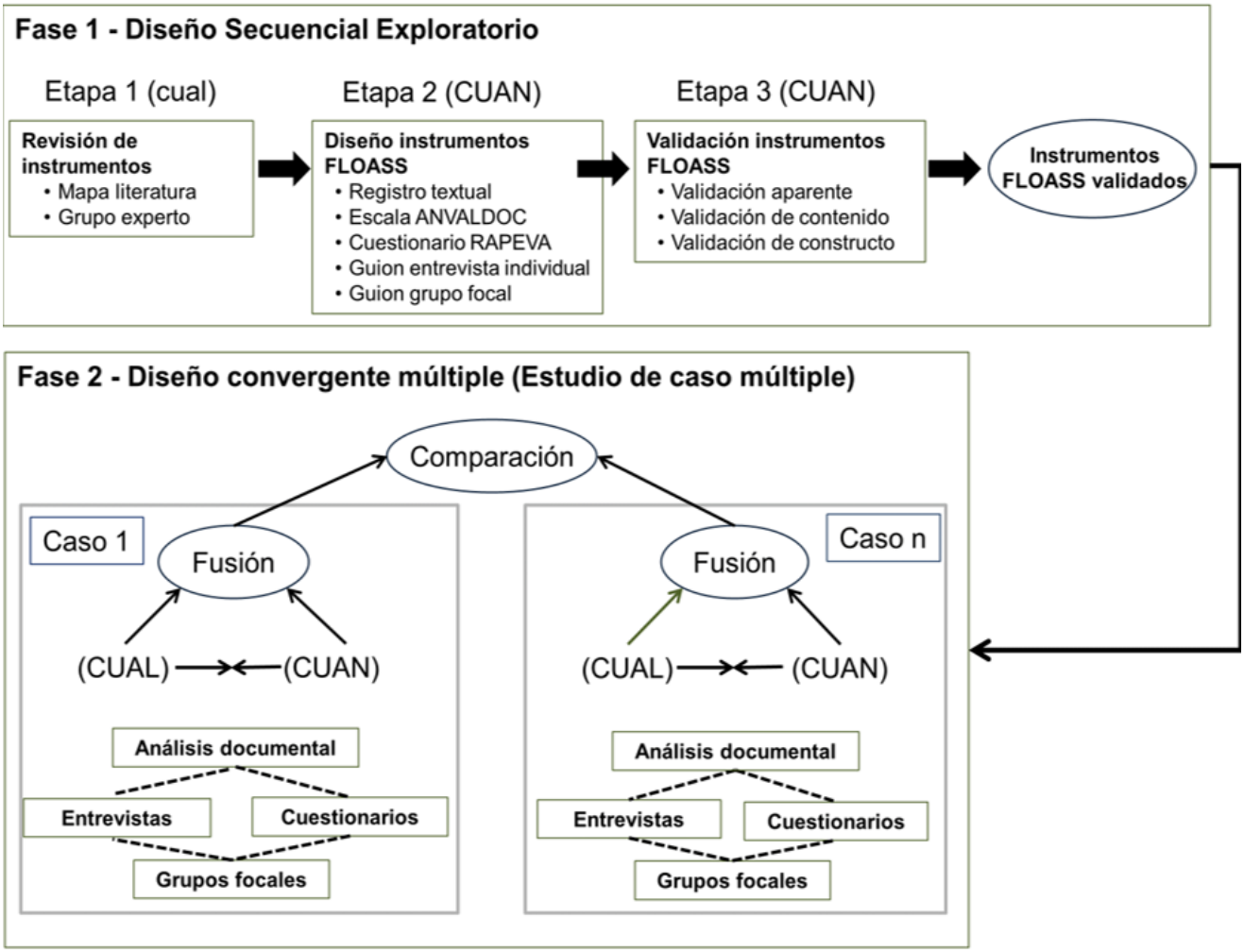
Design

A mixed-methods approach was followed, comprising two related designs (Figure 1). In the first phase, a sequential exploratory design (Creswell and Plano Clark, 2018) was implemented, structured in three stages (the first qualitative and the rest quantitative), which enabled the constructs to be conceptualised and operationally refined on the basis of the literature in order to construct and validate metrics with a high degree of analytical rigour. In the second phase, a multiple convergent design was deployed using a nested multiple case study (Yin, 2018) carried out simultaneously across the different universities. This approach allowed the quantitative and qualitative data to be merged during the discussion phase, so that subjective perceptions could illustrate, explain and interact with the statistical trends obtained from the documentary analysis.

The research was approved by the Bioethics Committee of the University of Cádiz (Registration No. 75.19) for the FLOASS Project, as well as by the Research Ethics Committee (CEI) of the Regional Government of Andalusia.

Figure 1

Exploratory sequential design and multiple convergent design



Methodology

The following instruments were used for this study:

1. The ANVALDOC scale, designed and validated for the content analysis and assessment of RA, competences and assessment methods described in the degree programme reports (Rodríguez-Gómez and Ibarra-Sáiz, 2020; Rodríguez-Gómez et al., 2025). The development of the instrument was based on a prior bibliographic review and was submitted for review by 12 experts, who validated its content using the group consensus method. Consistency in the coding of the 9,419 RA items was ensured procedurally through prior calibration and standardisation of criteria by the research team and standardised application using the CORAMeval software (Balderas-Alberico et al., 2021).
2. *RAPEVA* Questionnaire – *Teachers' self-report on their practice in assessing learning outcomes*. Twenty-two expert judges were involved in the content validation of the instrument, using a group agreement and consensus procedure. The self-report is based on the modelling of constructs as composites (Hair et al., 2022; Henseler, 2021). Consequently, the structure of the scale was analysed using *Generalised Structured Component Analysis* (GSCA; Hwang and Takane, 2015). The fit indices obtained (*GFI* = 0.89; *SRMR* = 0.08) support the structural validity of the proposed model. In this specific study, the *'Learning Outcomes'* dimension, comprising 6 items (I06 to I11) on a 0–5 Likert-type scale, was analysed. The questionnaire was administered online via the SurveyMonkey platform, available in both Spanish and Basque.
3. Interview script for master's programme coordinators (Ibarra-Sáiz, González-Elorza and Rodríguez-Gómez, 2023).
4. Interview script for student focus groups.

In the case of the qualitative instruments (interview scripts and focus groups), rigour was ensured through content validation by a committee of experts, followed by a process of triangulation and consensus-building on the final system of categories by the research team.

Sample and participants

The sample was selected using purposive sampling based on three inclusion criteria: 1) master's degree theses (MT) in the field of Social Sciences with official approval; 2) affiliation with six public universities participating in the FLOASS Project, representing geographical diversity (University of Cádiz–UCA, University of A Coruña–UDC, University of Oviedo–UNIOVI, University of the Basque Country–UPV/EHU, Rovira i Virgili University–URV and University of Valencia–UV) to ensure contextual representativeness; and 3) active involvement and direct experience of teaching staff, programme coordinators and students in the curricula evaluated.

After applying these criteria, the final sample for the documentary analysis (Table 1) comprised 89 teaching modules (MT) from the fields of Communication (COM), Economics (ECO) and Education (EDU), distributed across the six institutions, from which a total of 9,419 learning outcomes (RA) were initially categorised and analysed.

Table 1

Distribution of degree theses (MT) and learning outcomes (RA) analysed

University	Field of knowledge							
	COM		ECO		EDU		Total	
	MT	RA	MT	RA	MT	RA	MT	RA
UCA	2	80	8	335	5	925	15	1,340
UDC	1	34	5	185	6	488	12	707
UNIOVI	-	-	6	1,408	4	746	10	2,154
UPV/EHU	3	-	9	38	6	-	18	38
URV	1	62	4	765	5	1,128	10	1,955
UV	3	60	13	387	8	2,778	24	3,225
Total	10	236	45	3,118	34	6,065	89	9,419

Following an initial analysis, the assessment rubrics that did not meet the criteria for correctness – either because they were poorly written or failed to clearly state what students were required to do or demonstrate – were excluded, reducing the sample to 5,856 assessment rubrics (62.2%).

With regard to assessment practice, the views of the degree programme coordinators were obtained through 60 interviews, the perceptions of teaching staff through the completion of 416 self-reports, and the students' perspectives through 14 focus groups involving 66 students (Table 2).

Table 2

Distribution of self-reports, interviews and focus groups by subject area and university

Technical	Field	Universities						
		UCA	**UDC**	**UNIOVI**	**UPV/ EHU**	**URV**	**UV**	**Total**
RAPEVA Questionnaire – Self-report	COM	5	4	-	8	1	-	18
	ECO	26	30	12	56	28	15	167
	EDU	30	49	43	53	1	55	231
	Total	61	83	55	117	30	70	416
Interviews	COM	1	1	0	3	1	-	6
	ECO	8	4	3	5	2	1	23
	EDU	4	5	4	6	4	8	31
	Total	13	10	7	14	7	9	60
Focus groups	COM	1	-	-	-	1	-	2
	ECO	1	-	3	-	-	1	5
	EDU	2	2	-	1	-	2	7
	Total	4	2	3	1	1	3	14

Data analysis

To achieve the first objective, a content analysis was carried out using the ANVALDOC scale and the CORAMeval tool, followed by descriptive statistical techniques.

With regard to the second objective, a descriptive analysis was carried out of teachers' perceptions of their assessment practices, along with a content analysis using a categorisation system to code the interviews with course coordinators and student focus groups.

Finally, to achieve the third objective, a comparative analysis was carried out on contextual differences, both by field of study and by university, using descriptive statistical techniques and non-parametric tests of difference.

Quantitative data analysis was carried out using IBM SPSS (version 27) and R (R Core Team, 2026), whilst MAXQDA2022 Analytics Pro was used for qualitative data analysis.

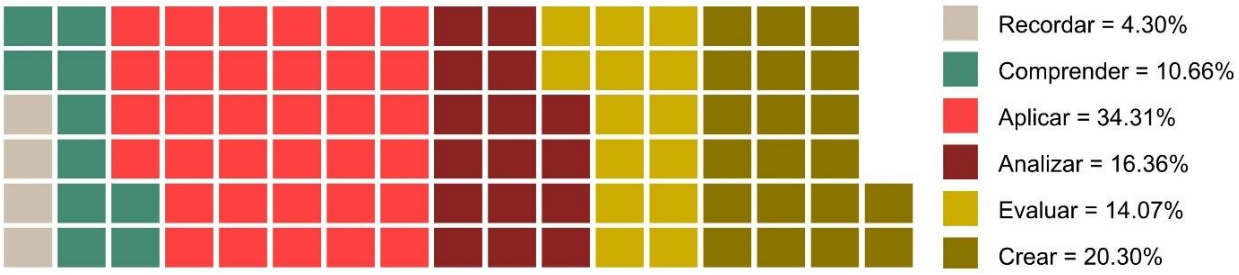
Results

Cognitive processes and predominant types of knowledge in the final dissertations

Figure 2 presents the results obtained from the analysis of the degree programme descriptions based on Bloom's Revised Taxonomy (Anderson and Krathwohl, 2001). The cognitive process that stands out in the RA statements corresponds to the 'apply' level (34.31 per cent), which focuses on using a model or procedure in a given situation.

Figure 2

Distribution of the cognitive process inferred from the RA definitions



"Apply the principles of actuarial planning and control necessary for the functioning of pension scheme operations and other alternative schemes, taking particular account of their financial and actuarial aspects" [ECO_UPV/EHU].

Next, 20.30% of the RAs relate to the 'create' level, involving bringing elements together to form a functional or coherent whole, and reorganising elements into a new structure or pattern.

"Creating and editing images, audio and video to serve an educational purpose" [EDU_URV].

The 'analyse' level accounts for 16.36 per cent and involves breaking an object down into its constituent parts, determining how they relate to one another and identifying an overall structure or purpose. The 'evaluate' level accounts for 14.07 per cent; that is, those ARs in which pupils must make judgements based on criteria and standards.

"To analyse complex problems, break them down and formulate approaches to solving them" [COM_UCA].

"To evaluate, from a pedagogical perspective, the suitability of different computer programmes and other ICT resources for the design of experimental research at different educational levels" [EDU_UV].

To a lesser extent, learning outcomes are categorised at the 'understand' level (10.66 per cent), focusing on constructing meaning through oral, written and graphic communication, and 4.30 per cent at the 'remember' level, where students must retrieve relevant knowledge from long-term memory.

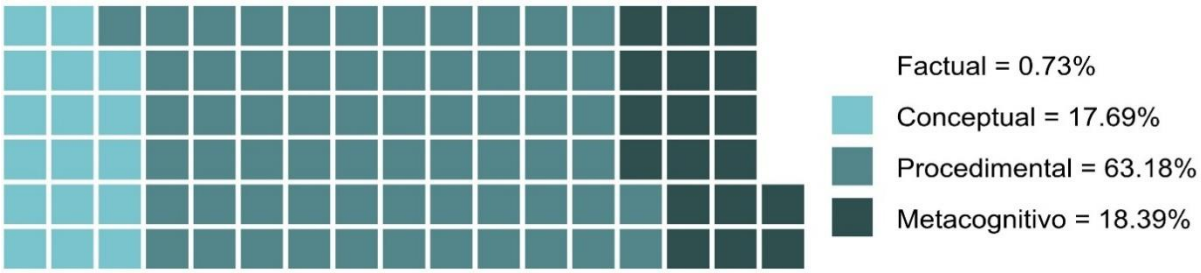
"To understand the links between the formulation of a financial plan, its implementation and monitoring" [ECO_UDC].

"Knowing the appropriate procedures for analysing causal relationships" [ECO_UNIOVI].

The results regarding the type of knowledge inferred from the definitions of the learning outcomes are presented in Figure 3. It can be seen that procedural learning outcomes predominate (63.18 per cent), as they focus on students knowing how to do something, the use of inquiry methods and criteria for applying skills, algorithms, techniques and methods.

Figure 3

Distribution of the type of knowledge inferred from the definitions of the learning outcomes



"Undertake work placements in audiovisual companies in the field of production and the development of linear and interactive projects" [COM_UV].

Learning outcomes categorised as metacognitive—aimed at enabling students to become aware of, control and understand their own cognition—account for 18.39 per cent.

"Design learning materials in accordance with the students and the teaching context" [EDU_URV].

Conceptual learning outcomes, through which interrelationships and structures of foundational knowledge are established to function in combination, account for 17.69 per cent, whilst factual learning outcomes are negligible (0.73 per cent).

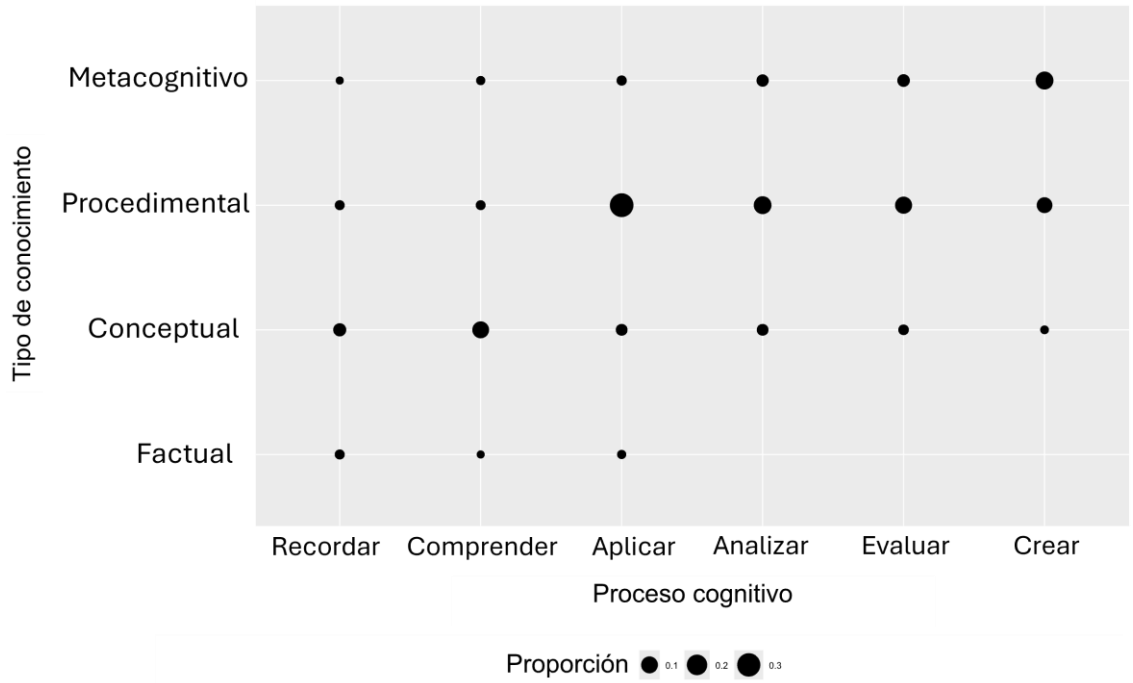
"Select and manage cutting-edge digital marketing tools appropriately when applied in non-profit organisations" [COM_UCA].

"Identify the characteristics and strategies of successful change and innovation processes" [EDU_UNIOVI].

Based on the six cognitive processes and the four types of knowledge used to classify the RAs (Figure 4), the predominance of procedural knowledge (63.18 per cent) and its strong association with the 'apply' cognitive process (34.31 per cent) is evident.

Figure 4

Bubble diagram of the dimensions 'types of knowledge' and 'cognitive processes' expressed in the RA

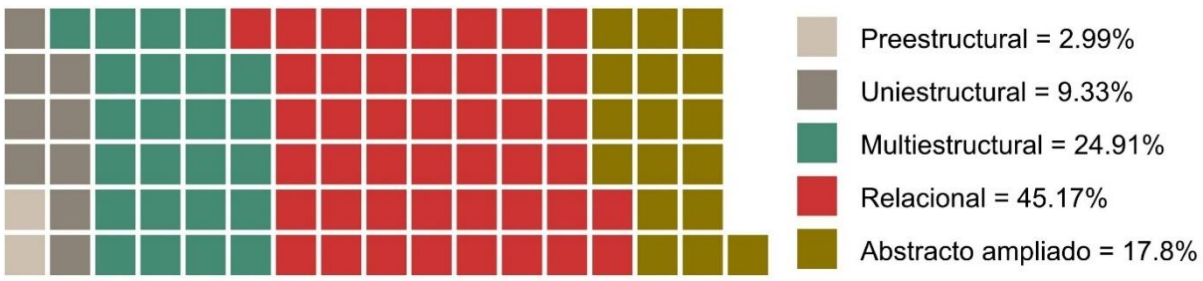


Knowledge structures inferred from the RA

Based on the SOLO Taxonomy (Biggs and Collis, 1982), the RA were classified according to the underlying knowledge structures in their definitions. The results of this classification are presented in Figure 5 and, as can be seen, the majority of RA definitions are at the relational level (45.17 per cent), as they integrate elements of information with others through processes of induction, generalising within a given context and forming a coherent structure with consistent meaning.

Figure 5

Distribution of RAs according to underlying knowledge structures



"Understanding the concepts involved in a COR curve and knowing how to apply it to compare diagnostic methods" [ECO_UNIOVI].

RA categorised at the multi-structural level—that is, those that seek to establish relationships between independent aspects without explaining the relationships or their implications for the whole of which they form part, or which generalise on the basis of certain limited and independent aspects using isolated data—account for 24.91 per cent.

"Relating the theory of language acquisition to pedagogical practice in the classroom" [EDU_URV].

17.80 per cent of the RAs correspond to the expanded abstract level, in which students are expected to generalise the structure to other domains, use induction and deduction, generalise the entirety of the domain coherently to advanced levels of abstraction and to non-experimental situations, and conclude by considering possible logical alternatives and transferring them to other areas of expertise.

"To design an original piece of research comprising its fundamental components: objectives, hypotheses, research methods and techniques, theoretical foundations and communicative-social context" [COM_UV].

Single-structure-level learning outcomes, in which students must make simple and obvious connections whilst learning without relating factual and conceptual content, account for 9.33 per cent.

"Understand the importance of economic and financial information for business management" [ECO_UDC].

Finally, pre-structural-level learning outcomes, where information is acquired without connection, organisation, meaning or meaningful learning, are residual (2.99 per cent).

"Identify the different public and/or private financing instruments available to start-up companies" [ECO_URV].

Perceptions of teaching staff, programme coordinators and students regarding their assessment practices in relation to the learning outcomes

Of the various dimensions that make up the RAPEVA self-report (Ibarra-Sáiz, Rodríguez-Gómez, et al., 2023), this study focused on the dimension relating to lecturers' perceptions of the learning outcomes they expect students to achieve. Table 3 presents the degree of agreement expressed by teaching staff on each of the items, corresponding to each of the six levels of Bloom's Taxonomy.

Table 3

Level of agreement with the items relating to the AR dimension of the RAPEVA self-report questionnaire

Agreement*	Recall	Understand	Apply	Analysing	Evaluate	Create
0	6.7	0.2	-	0.5	2.4	1.9
1	10.1	1.0	0.7	1.0	2.4	4.6
2	18.0	2.4	2.2	4.1	5.5	5.5
3	25.2	8.7	4.6	10.1	10.3	12.3
4	20.2	26.0	28.6	30.3	35.8	31.0
5	19.7	61.8	63.9	54.1	43.5	44.7
Total	100 %	100%	100%	100%	100%	100%

Note: *0=Disagree, 5=Agree

The vast majority (92.5%) of teachers strongly agree (M = 4.53; SD = 0.75) that the learning outcomes expected of pupils relate to the 'application' level, as *they 'involve processes related to applying what has been learnt in new contexts and situations*'. Next comes the 'understand' level (M = 4.44; SD = 0.85), as 87.8 per cent agree that *these 'involve processes related to the understanding of concepts*'. This is followed by the 'analyse' level (M = 4.31; SD = 0.94), where 84.4 per cent of teachers consider that *these 'involve processes related to the analysis of different situations*'. With regard to the 'evaluate' level (M = 4.05; SD = 1.67), 79.3 per cent of teachers state that problem-solving activities in their subjects *"involve processes related to making judgements and assessments based on criteria and standards, using verification and critical analysis*". At the 'creation' level (M = 4.00; SD = 1.23), 75.7 per cent agree that *they "involve processes related to creativity (creating, developing, producing)*". Finally, 39.9 per cent place the RA at the recall level (M = 3.00; SD = 1.48) as *they "involve processes related to the assimilation of knowledge and memory*".

The perspectives of programme coordinators and students, gathered through interviews and focus groups, coincide on three issues that affect and influence the assessment practice of RAs: conceptualisation, wording and authenticity.

Firstly, regarding the issue of conceptualisation, the programme coordinators state that they are unsure about the correct definition of RAs or show confusion by using the term 'competencies' instead of 'RAs'.

"It's true that the terminology confuses me; yes, it's here, [RA], forgive me" [EC_UCA_ECO].

"Referring to the general and specific competences of the Master's degree. There are also cross-cutting competences, etc." [EC_UCA_EDU].

Students also demonstrate a lack of understanding of the correct conceptualisation of learning outcomes and show conceptual confusion when referring to 'competences' or 'objectives' rather than learning outcomes.

"I feel that within [some subjects] there are indeed some skills that I do see as achievable, but there are others where I didn't feel the same way" [GF_URV_COM].

"I think I would have liked something more along the lines of clear objectives, because here it's just a very rough explanation" [GF_UCA_COM].

The programme coordinators believe that the reason for this may be that the learning outcomes have been proposed and drafted individually by the teaching staff for each subject, without any agreement or consensus amongst the teaching team involved in the master's programme.

"Each lecturer has proposed their own independently" [EC_UV_EDU].

Students are sometimes unaware of the learning outcomes because they do not consult the course guides, syllabuses or the programme description for their degree.

"To be honest, I haven't even looked at the assessment sheets or anything like that; I admit it" [GF_UCA_EDU].

Secondly, with regard to the wording, students find the learning outcomes useful when they are well written and clearly set out what they need to do or demonstrate.

[RA] "Yes, I do think they do help us to understand the module and its content and, above all, to know what tasks we'll have to carry out, depending on how they're worded" [GF_UCA_EDU].

However, there are degree programmes in which the learning outcomes do not appear in the teaching guides or course syllabuses. Based on feedback from the programme coordinators, this situation may be due to the fact that, at the time the course descriptions were drawn up, it was not necessary to specify the learning outcomes; indeed, they even express doubts as to whether learning outcomes exist or not in the degree programme they coordinate or in the course they teach.

"I don't know; are you sure they don't exist? It's just that I can't remember right now" [EC_UCA_ECO].

Students also confirm this lack of specification regarding learning outcomes.

"It's odd that the module [my fellow student] mentioned doesn't have any [learning outcomes]" [GF_UCA_ECO].

Some students and programme coordinators believe that the LOs are not set out clearly and explicitly in the course guides or syllabuses so that they can be properly understood and, as a result, do not clearly indicate what students are required to do or demonstrate.

"I think the way it's worded hasn't been very clear" [GF_UPV/EHU_EDU].

In this regard, the programme coordinators state that they aim to ensure greater academic freedom.

> *"I'd say no, but we lecturers have learnt that we have to do everything in the most ambiguous way possible so as not to get our fingers burnt. The solution to the problem? Using utterly ambiguous language that means nothing. If we go through the [learning outcomes] one by one, they're very vague, but if they weren't vague, we'd have a problem"* [EC_UCA_ECO].

In this context, students express a certain degree of dissatisfaction with the ambiguity and lack of specificity of some RAs.

"There are modules I've completed and even now I don't know what they were actually about" [GF_UV_EDU].

The final issue identified concerns the relevance of the RA programmes, that is, the extent to which they relate to students' future professional context. Programme coordinators and students emphasise its importance, as they consider it essential for the RA programmes to be directly linked to their professional work and future employability.

"What we are trying to do is ensure that students are able to face the world of work, be capable of becoming part of a company and know how to make decisions and work as part of a team" [EC_UDC_ECO].

"They shared their experiences with us and enriched our knowledge and understanding of the subject and what our future careers might look like" [GF_UNIOVI_ECO].

In this regard, some students say they do not feel prepared to carry out their professional work in a real-world context.

"With what I've learnt so far – I don't know if it's because I haven't fully grasped the subjects – but I don't feel capable of carrying out any professional work. I wouldn't be able to work in a school as a special needs teacher" [GF_UV_EDU].

Two further aspects to consider regarding the assessment practices of the RA programmes are, on the one hand, the level of teacher training and, on the other, the difficulties in improving the qualifications. With regard to training, we find conflicting views, such as those expressed by those who consider themselves to have significant professional experience.

"All the teaching staff have a great deal of experience and are fully aware of the reality they are supposed to be dealing with" [EC_UV_EDU].

However, other coordination teams highlight the need for staff training and express an interest in improving the design of the RA.

"I'm from the field of communication and, of course, I'm interested in all matters relating to teaching, but I'm not a specialist" [EC_UCA_COM].

"I believe that lecturers have sufficient training to be able to assess [RA]; the question is whether they are up to date with the most appropriate system and whether they are able to make the most of all the possibilities" [EC_UNIOVI_EDU].

With regard to improving degree programmes, the programme coordinators agree that administrative processes should be streamlined to facilitate the modification and updating of learning outcomes in academic reports.

"It's a very challenging situation; on the one hand, we're grappling with a particular approach or ideology regarding how the [RA] should be structured and how assessment should be conducted, whilst on the other hand we're coming up against a significant amount of red tape" [EC_UCA_ECO].

Context as a distinguishing factor

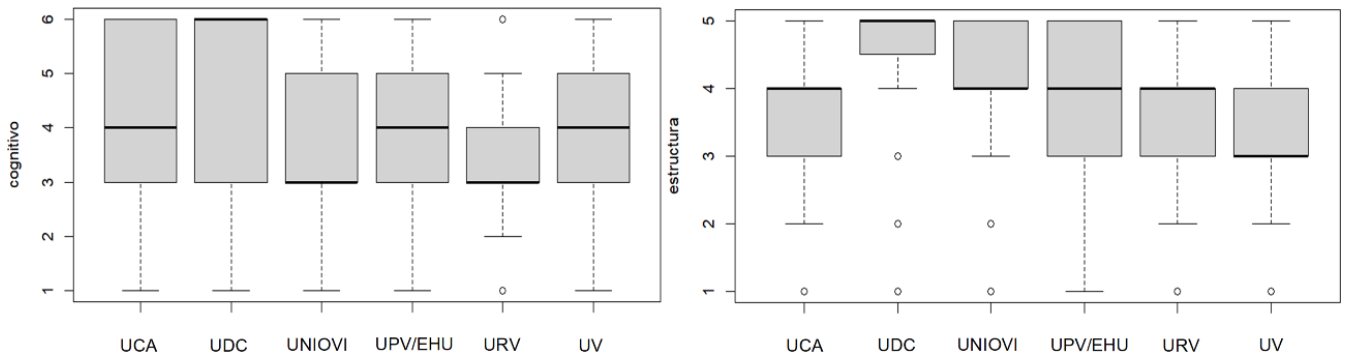
Contextual differences by university

With regard to the marking of the RA exams, a chi-squared test of independence was carried out to analyse the association between the university and the marking of the RA exams, and the result was significant: $\chi^2(10, N = 9{,}419) = 3{,}180.15$; $p = 0.000$.

Figure 6 shows the descriptive results for each of the universities with regard to cognitive processes (1=remember, 2=understand, 3 = apply, 4 = analyse, 5 = evaluate, 6 = create) and knowledge structures (1 = pre-structural, 2 = uni-structural, 3 = multi-structural, 4 = relational, 5 = extended abstract). The Kruskal–Wallis test confirms that these differences are significant in both cognitive processes ($H = 128.236$; $p < 0.001$) and knowledge structures ($H = 777.637$; $p < 0.001$).

Figure 6

Differences and similarities in cognitive processes and knowledge structures by university



These differences between universities are also evident in the types of knowledge. Table 4 presents the chi-square results, all of which are significant.

Table 4

Chi-square results by university

Types of knowledge	χ^2	*df*	Sig.
Metacognitive	1047.555	10	0.000
Procedural	692,808	10	0.000
Conceptual	1,031,137	10	0.000
Factual	287,992	10	0.000

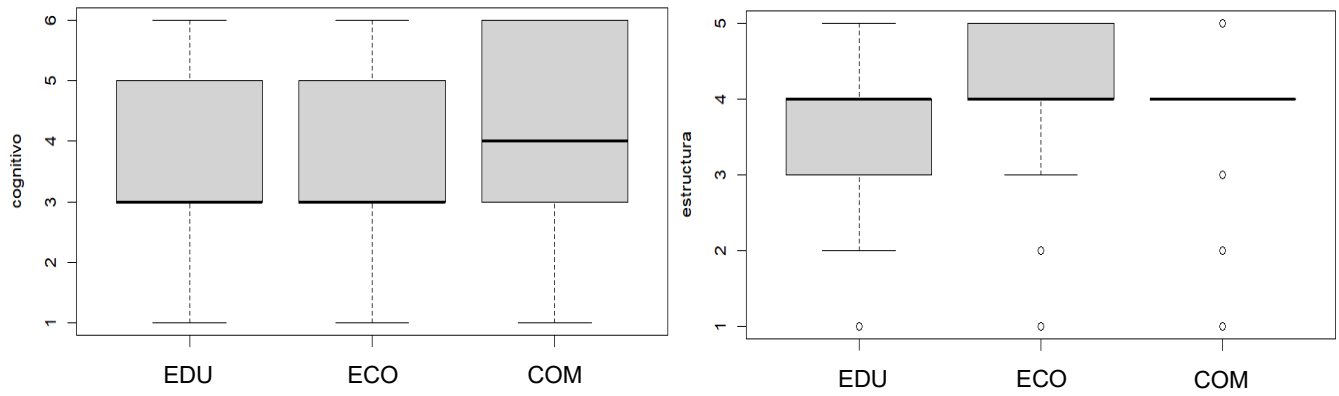
Contextual differences by field of knowledge

To analyse the possible association between field of knowledge and the accuracy of the RA responses, a chi-squared test of independence was carried out, yielding a significant result: $x^2(4, N = 9{,}419) = 685.726$; $p = 0.000$.

Figure 7 presents the descriptive results for each domain of knowledge with regard to cognitive processes and knowledge structures. The Kruskal–Wallis test values confirm that these differences are significant, both in relation to cognitive processes ($H = 11.793$; $p < 0.002$) and to knowledge structures ($H = 251.109$; $p < 0.001$).

Figure 7

Differences and similarities in cognitive processes and knowledge structures by domain of knowledge



These differences between fields of knowledge are also evident in the types of knowledge, as can be seen from the chi-square results presented in Table 5.

Table 5

Chi-square results by field of knowledge

Types of knowledge	χ^2	*df*	Sig.
Metacognitive	285.103	4	0.000
Procedural	48,790	4	< 0.001
Conceptual	217,443	4	0.000
Factual	29,936	4	< 0.001

Discussion and conclusions

The primary objective of this study was to assess the scope and types of learning outcomes specified in the programme descriptions of Master's degree programmes, since, as highlighted by Boud et al. (2018) and Tai et al. (2018), the quality of learning outcomes is essential because they guide the teaching and learning process and constitute the framework upon which assessment is based. Thus, when analysing the design and formulation of learning outcomes that are commensurate with the level of specialisation required for master's degree programmes, it has been found that there is not only a certain conceptual difficulty regarding the very concept of learning outcomes, but also in terms of their specificity; indeed, numerous learning outcomes are not expressed in an adequate and, above all, comprehensible and coherent manner. This situation has been evident both in the literature review and in the perceptions of programme coordinators, teaching staff and students, and is consistent with the

research by Bone and Ross (2021) and Schoepp (2019), who highlight the frequent inadequate formulation of learning outcomes in the university context.

Similarly, the programme descriptions reveal that the majority of learning outcomes are procedural in nature, focusing on application and comprehension, and that the structure of knowledge is relational. Bearing in mind that these are Master's programmes, which should require a high level of qualification, the cognitive processes, and the type and structures of knowledge inferred from the learning outcomes may prove to be insufficient.

A second objective was to analyse assessment practices; in this regard, it has been found that, from the teaching staff's perspective, the majority of learning outcomes in their modules are considered to correspond to the application and comprehension levels, which is consistent with the documentary analysis of the programme reports. Furthermore, programme coordinators and the students themselves have highlighted how the conceptualisation or formulation of learning outcomes hinders the necessary transparency of assessment processes.

Programme coordinators identify bureaucratisation as a structural barrier that prevents the swift updating of university degree programmes and, consequently, of learning outcomes, thereby hindering innovation and continuous improvement. In some cases, the use of ambiguous language to avoid student complaints is even acknowledged, which represents a distortion of the educational purpose of learning outcomes. Along the same lines, Martínez-Zarzuelo et al. (2024), in their study on the impact of verification and accreditation processes, point out that these processes do not appear to be having a significant influence on the suitability of assessment systems for evaluating the extent of learning outcomes, which suggests the need to critically review not only assessment practices, but also the very mechanisms of quality assurance and review that should promote their improvement.

The third objective was to analyse possible contextual differences and, in this regard, heterogeneity at institutional level has been observed, suggesting that the quality of the design and implementation of learning outcomes does not depend exclusively on external regulations or national policies, but is conditioned by institutional, cultural and educational factors specific to each university (Erikson and Erikson, 2019; Prøitz et al., 2017) or by fields of knowledge. This situation highlights the urgency and need to strengthen teacher training across all areas, in line with the observations of Dobbins et al. (2016) and Hadjianastasis (2017), who emphasise that academic commitment and a deep understanding of the approach are essential conditions for the effective implementation of learning outcomes.

The findings of this study reveal that course coordinators, teaching staff and students recognise the educational potential of learning outcomes as guides to learning and as a tool that can enhance employability, provided they are well formulated, contextualised within real-life situations and clearly communicated. Furthermore, it has been shown that greater attention is paid to mid-level cognitive processes, with less emphasis on higher-level processes such as evaluating or creating, despite the fact that a master's programme would require higher-level processes to achieve a high degree of specialisation. In the same vein, there is evidence of a predominance of procedural knowledge over metacognitive knowledge, and only limited use of abstract-level knowledge structures that facilitate generalisation to other domains.

Consequently, as Coates et al. (2021) and Villarroel et al. (2018) point out, there is a need to advocate for authentic and meaningful assessment, in which learning outcomes link the university to professional practice. To achieve this, university teaching staff require solid training in assessment, enabling them to redesign assessment processes using innovative and critical approaches, focusing on the cognitive processes and higher-order knowledge specific to specialised training, whilst reviewing the technical and technological aspects that facilitate a radically expert and formative assessment practice.

Despite the size of the sample analysed, the study has limitations that must be taken into account when extrapolating its findings. Firstly, the research was confined exclusively to the field of Social Sciences; consequently, the formulation and experience of learning outcomes may differ in other fields of knowledge with different academic and experimental requirements. Secondly, the data on teaching staff are derived from self-reported perceptions, which may imply a degree of social desirability regarding their actual teaching practice in the classroom.

However, these results yield practical implications of relevance to university governance. On the one hand, they highlight the need for quality assurance agencies and degree programme committees to ease the bureaucratic rigidity highlighted by programme coordinators, by facilitating streamlined procedures for amending academic guidelines. On the other hand, it is imperative to promote institutional training programmes aimed at developing teachers' assessment literacy. Such initiatives must provide training not only in the clear formulation of learning outcomes, but also in the co-design of authentic assessments linked to professional contexts, so that learning

outcomes transcend mere administrative formalities and become genuine drivers of continuous curricular improvement.

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