STUDIA UBB PSYCHOL.-PAED., LXXI, Special Issue, 2026, p. 131-143
(Recommended Citation)
DOI:10.24193/subbpsyped.FOHE.8

Writing Effective Learning Outcomes: Bridging Research and Classroom Practice

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ABSTRACT. This paper examines the role of learning outcomes in the design of higher education curricula, focusing on the Romanian context and the broader European policy framework. Over the past two decades, higher education has shifted from a content-centered model toward a student-centered paradigm that emphasizes what graduates are able to demonstrate in terms of knowledge, skills, autonomy, and responsibility. Although learning outcomes were introduced within the Bologna Process to support transparency, comparability, and employability, their implementation often remains formal rather than transformative. Drawing on insights from the learning sciences, the paper highlights the importance of formulating outcomes that support deep understanding, knowledge transfer, and progression from novice to expert. It also discusses the distinction between knowledge, understanding, and skills, as well as the need to embed autonomy and responsibility within outcome statements. Finally, the study proposes the Rigour/Relevance Framework as a practical instrument for designing learning outcomes that integrate cognitive demand with authentic application contexts, thereby strengthening alignment between curriculum design, teaching, assessment, and the development of professional expertise.

Keywords: learning outcomes, competencies, deep learning, Daggett framework

1. The Romanian Higher Education Context in Relation to the Implementation of the Learning Outcomes Principle

A paradigm shift has been reshaping the mission of higher education over the past two decades: the central challenge is no longer how efficiently universities transmit information, but how intentionally they cultivate professional

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expertise. In a context where knowledge is abundant and rapidly accessible, the key differentiator becomes what students can actually do with what they know—how they reason, how they transfer learning to new and unfamiliar situations, and how they perform in complex, real-world contexts. This shift raises the stakes for curriculum design. Learning can no longer be reduced to content coverage; academic programmes must articulate clearly what graduates are expected to demonstrate, at what level of sophistication, and in which contexts of application.

The orientation toward learning outcomes emerged in Europe precisely as a response to these challenges. Within the Bologna Process, the language of learning outcomes was introduced at the Berlin ministerial meeting in 2003 and consolidated at the Bergen meeting in 2005 through the adoption of the Qualifications Framework for the European Higher Education Area. Grounded in descriptors formulated in terms of learning outcomes, this framework marked a transition toward a student-centered paradigm. The new paradigm emphasizes demonstrable learning, employability, and the transparency and comparability of qualifications across systems.

Despite this policy commitment, the implementation of the learning outcomes approach remains uneven across many higher education systems, including that of Romania. In practice, learning outcomes may function either as the backbone of programme design and quality assurance or merely as a formal compliance layer that leaves teaching and assessment practices largely unchanged. This difficulty is often compounded by the proliferation of programme documents—programme descriptions, course syllabi, assessment frameworks, and diploma supplements—where outcomes may appear in different forms or levels of detail. When external standards and quality assurance requirements are added, learning outcomes may be perceived by academics more as administrative artefacts than as tools for guiding teaching, learning, and assessment.

The consequence of this "formalization without transformation" is significant. When outcomes lack clarity and practical relevance, teaching frequently defaults to lectures and examinations that privilege recall rather than competence, leaving students to infer how academic knowledge connects to professional practice. Yet a genuinely student-centred approach requires the opposite logic: what ultimately matters is not what teachers intend to teach, but what students are able to demonstrate at the end of a course or programme. For this reason, higher education institutions face the challenge of translating disciplinary knowledge into coherent, observable learning outcomes that support meaningful curriculum design, credible assessment, and clearer communication of graduate capabilities.

Learning outcomes constitute a central element in the design of the university curriculum because they mediate the relationship between institutional objectives and the individual needs of learners. They specify what students are expected to know and understand, what they should be able to do, and what types of attitudes or values they should develop, thereby providing a framework for organizing teaching and learning processes from a learner-centred perspective. As students' progress within a university level/cycle, as well as between levels, the corresponding programmes and courses must include learning outcomes that reflect progressively higher levels of complexity. In practice, these outcomes must foster the development of students' autonomy and their capacity to address less structured or unpredictable situations and tasks. Although the literature consistently emphasizes the importance of properly formulating learning outcomes for the effective design of curricula and assessment strategies, numerous studies show that their clarity and quality remain deficient, including in prestigious universities (Schoepp, 2019).

2. What are learning outcomes?

Learning outcomes are a central instrument in curriculum design and in the assessment of student performance, reflecting the shift from a content-centered approach to one oriented toward learners' concrete achievements. They define what a student knows, understands, and is able to do at the end of an educational process, and are articulated in terms of knowledge, understanding, and skills demonstrated at specific levels of autonomy and responsibility (European Commission, 2017).

An essential distinction in the formulation of learning outcomes is that between knowledge and understanding, on the one hand, and skills, on the other. Knowledge and understanding concern the mental representation of a field, with an emphasis on concepts, principles, theories, and models, and reflect the quality of understanding rather than the mere memorization of information. They involve the processing, integration, and analysis of information without its immediate application in practice. By contrast, skills refer to the application of acquired knowledge in concrete contexts; they are observable and assessable through performance and involve decision-making, adaptation, and problem solving (Biggs & Tang, 2011). This distinction thus underscores the transition from conceptual knowledge to the capacity to use and transform knowledge into practical outcomes. Educational contexts in which learning occurs help clarify this distinction. The theoretical-formative context, intended for the deepening of knowledge and understanding, includes activities such as debates, presentations,

discussions, papers, tests, and theoretical assessments, allowing students to process and analyze information without immediately applying it. By contrast, the practical-applied context supports the development of skills through the use of knowledge to produce concrete outcomes or to solve simulated problems or problems closely approximating real situations, by means of laboratories, practical exercises, projects, case studies, simulations, interventions, and placements (CEDEFOP, 2017). This organization highlights the complementarity of the two dimensions and the importance of the formative context in defining educational objectives.

Finally, the clear formulation of learning outcomes, correlated with the type of educational context, provides a coherent framework for teaching and assessment, ensuring alignment between institutional objectives and learners' needs. It also contributes to greater transparency of study programmes and to the development of the academic and professional competences required for active learning and the application of knowledge in new contexts (Kennedy et al., 2007; European Commission, 2017).

3. Why is it necessary to formulate the aims of a programme/ course/learning sequence in terms of learning outcomes?

The formulation of learning outcomes is a foundational component of university curriculum design, serving multiple strategic purposes. As is already well known, expressing educational aims in terms of outcomes facilitates the international recognition of qualifications by providing a common language that enables comparison of the competences acquired by students in different educational systems (European Commission, 2017).

Another highly important, though unfortunately less frequently highlighted, aspect is that formulating educational aims in terms of learning outcomes is consonant with findings from the learning sciences. Within this framework, clearly defined learning outcomes can function as an essential link between emerging knowledge from the learning sciences and the concrete design of effective educational experiences. Studies in the learning sciences that analyse the differences between experts and novices, as well as the mechanisms of knowledge transfer, provide a solid theoretical framework for understanding how learning outcomes should be formulated. Research shows that experts and novices differ not only in the amount of knowledge they possess, but above all in the way that knowledge is structured and organized. Experts possess well-integrated cognitive representations organized around key concepts and fundamental principles, whereas novices tend to focus on surface features and fragmented information. Moreover, experts

demonstrate knowledge transfer, that is, the ability to apply intelligently what they have learned, knowing when, how, and why to use their information in new contexts (Bransford et al., 2010). This novice-expert difference has direct implications for the formulation of learning outcomes. If outcomes are expressed solely in terms of the accumulation of information or the reproduction of content, they risk supporting learning strategies characteristic of the novice level and limiting progression toward expertise. By contrast, outcomes formulated around conceptual understanding, the relationships among ideas, and the application of principles in varied contexts more faithfully reflect the way experts use knowledge. Learning outcomes that explicitly include the capacity to apply, adapt, and transfer knowledge to new problems encourage the design of activities and assessments that go beyond memorization and foster deep learning.

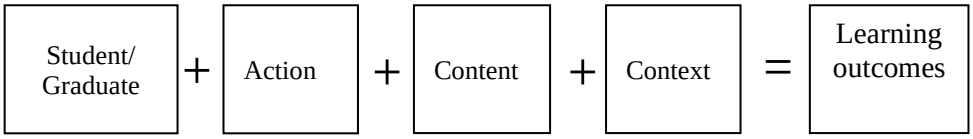
Therefore, integrating these findings from learning sciences research into the formulation of learning outcomes allows for better alignment between what is known about how people learn and the ways in which curriculum content, teaching, and assessment are designed. Concretely, learning outcomes become not merely statements with administrative or normative functions, but also pedagogical instruments that guide progression from novice to expert and support the development of transfer capacity, a central aim of education.

4. How do we formulate learning outcomes?

Learning outcomes represent a key concept used by specialists in the education system. They approximate as accurately as possible the actual competences required in professional contexts, thereby ensuring the academic and practical relevance of study programmes. Competence refers to the demonstrated capacity to use knowledge and skills in concrete work situations. It reflects what students are effectively and independently able to do, mobilizing a broad repertoire of knowledge and abilities in order to solve problems and make informed decisions in specific professional situations. In practical terms, competence is demonstrated when students are able to transfer the knowledge and skills acquired in relevant learning contexts to authentic professional contexts.

At programme level, the formulation of learning outcomes begins with the professional competences that students or graduates are expected to develop. A learning outcome is constructed by combining several elements: the subject of learning (the student or graduate), the action performed expressed by an action verb, the content, and the context in which it takes place. This structure may be synthesized as follows: Student/Graduate + Action + Content + Context (see figure 1). This algorithm may be used both for formulating outcomes on

the dimension of knowledge and understanding and for formulating skills-related outcomes. For example, a knowledge-oriented outcome may be: "Students describe, in their own words, the conclusions of statistical interpretations in the specialist articles studied," whereas a skills-oriented outcome may be: "Students use SPSS in carrying out a research project."



A particularly thorny and very frequent challenge in formulating learning outcomes concerns the representation of autonomy and responsibility. According to the EQF (European Qualifications Framework), beyond knowledge, understanding, and skills, learning outcomes are also formulated in terms of autonomy (the capacity for initiative and independent decision-making) and responsibility (assuming the consequences of one's own activity). From our perspective, grounded in the literature and in international practice (Purvis & Winwood, 2023), autonomy and responsibility should not be formulated separately; rather, they should be integrated into the structure of outcomes concerning knowledge, understanding, and skills, because they constitute indicators of progress in the development of knowledge and skills. This integration has several advantages: it makes progression visible, removes ambiguity in assessment, and clearly aligns outcomes, tasks, and assessment criteria, helping the student understand what it means to become autonomous. Concretely, this progression may be illustrated as follows: in the first year, autonomy is limited and guided; in the second year, autonomy is moderate, with the student selecting concepts and justifying choices; at master's level, autonomy is high, with the student creating original solutions and assuming responsibility for the impact of decisions. EQF qualification levels 6–8 explicitly reflect this progression, from the application of known procedures in predictable contexts to autonomy in complex contexts, the coordination of other professionals, and contribution to the development of knowledge.

To support the process of formulating learning outcomes, several strategies and instruments have been adapted and/or developed. One of the most intuitive instruments, and one supported by solid empirical evidence, is the Rigour/Relevance Framework, proposed and promoted by Willard Daggett as a representative of International Center for Leadership in Education (2014a, 2014b). This extends The revised Bloom's Taxonomy (Anderson & Krathwohl, 2001) by making the

context of knowledge and abilities application explicit, thereby strengthening the connection between academic knowledge and professional practice. The framework functions as a progression tool, highlighting the pathway from novice to expert and integrating autonomy and responsibility directly into performance expectations. In addition, the alignment of the framework with the EQF descriptors for levels 6–8 provides a solid external benchmark and ensures the international consistency of the curriculum (Purvis & Winwood, 2023).

5. Rigour/Relevance Framework– an instrument for writing learning outcomes

The essence and components of Rigour/Relevance Framework

Bill Daggett's Rigour/Relevance Framework can be repurposed as a framework for writing and evaluating learning outcomes in higher education. The framework brings together two essential dimensions of expertise: the level of cognitive demand (rigour) and the degree to which knowledge is applied in authentic contexts (relevance). It does not replace established taxonomies; rather, it builds on them to make the "quality of learning" observable by linking what students are asked to think with where and how they are asked to use what they know.

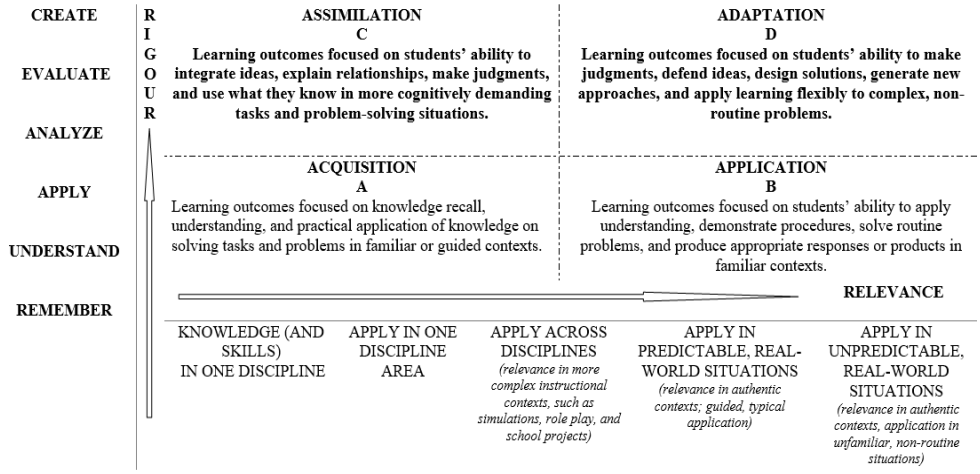
Dimension 1: Rigour (cognitive demand)

Rigour is anchored in the logic of Bloom's revised taxonomy: from remembering and understanding toward analysing, evaluating, and creating. But in this framework, rigour is not merely a ladder of verbs; it is a progression in the depth, structure, and critical handling of knowledge. At the rigorous end, students are expected to construct coherent mental models of a field, integrate concepts meaningfully, justify interpretations, and examine assumptions critically, thus moving beyond routine reproduction into deliberate reasoning.

Dimension 2: Relevance (application context)

Relevance captures the contexts in which knowledge is applied, ranging from classroom-framed tasks to integrated and authentic life situations where information may be incomplete, constraints are real, and solutions require personal judgment and adaptation. Importantly, relevance is not only an external practicality; it also includes the student's direct and personal engagement with learning and implies self-reflection, meaning-making, and connection to an emerging professional identity. In outcome terms, this means specifying the contexts and demands that invite students to internalize learning, not only to perform it correctly.

By pairing these two dimensions, the framework distinguishes between high-level cognitive operations performed within predictable disciplinary frames and cognitive and actional performances that require knowledge-in-use across varied, integrated, and sometimes messy conditions. Thus, four quadrants of learning acquisitions and performances are delineated. The four quadrants represent progressively more complex combinations of rigor and relevance. Quadrant A (Acquisition) refers to the basic acquisition of knowledge, where learners recall, recognize, and demonstrate understanding of essential concepts and information. At this level, learning remains relatively connected and is primarily associated with what students know. Quadrant B (Application) moves beyond recall toward the practical use of knowledge and skills in familiar situations, emphasizing correct routines, procedural accuracy, and problem-solving strategies. In this sense, it corresponds to what students can do with what they have learned. Quadrant C (Assimilation) involves deeper cognitive engagement with content, as learners analyze, reorganize, and critically approach concepts and themes already known in depth, while also identifying relationships and connections across ideas. Quadrant D (Adaptation) reflects the highest level of both rigor and relevance, as learners transfer knowledge and skills to new, unpredictable, and personally meaningful contexts. For students to navigate towards learning outcomes that fit this quadrant they must experience what is can be called an active and strategic engagement with knowledge and its respective practical and professional field, fruitful learning relationships, understood as connection with peers and ideas, empathy, and freedom, as well as learning experiences grounded in self-reflection, creativity, empathy, and personal developmental needs (ICLE, 2012, Daggett, 2014a).



Rigor/Relevance Framework, Daggett (2014a); International Centre for Leadership in Education (2012)

All these attributes of Rigour/Relevance Framework make it especially suitable as a shared" grammar" for outcomes. The instrument helps departments and study programmes providers preserve the disciplinary identity while aligning expectations across documents and making programme claims legible to students, quality assurance bodies, and employers. Focusing on the management of learning rigour and relevance can become a leverage for gradually supporting students deep learning, capacity of knowledge transfer and professional expertise.

Supporting deep learning, transfer and expertise through Rigour/ Relevance Framework

The central marker of professional expertise is transfer: the ability to carry learning across problems, settings, and levels of uncertainty. A key value of the Rigour/Relevance Framework is that it prevents transfer from being treated as an optimistic by-product of "knowing theory." Instead, it prompts educators to design outcomes and learning experiences that require recontextualization, explicitly recognizing what matters in a new situation, retrieving relevant knowledge, adapting it, negotiating constraints, and producing defensible decisions or outputs (ICLE, 2012).

This logic translates directly into assessment design. The framework provides reference points for diversifying assessment tasks along a continuum of authenticity, clarifying what counts as evidence of achievement at different points in a programme and supporting fair and equitable evaluation.

Academically situated performances

Even when rigour is high, many instructional assessment situations remain within stable disciplinary frames: debates, structured discussions, oral presentations, essays and reports, theoretical tests, or other conceptual examinations. These can demand analysis, evaluation, and even creation, but typically operate in a predictable "classroom-like" context where cues are familiar and prototypical and criteria are largely academic.

Authentic performances.

As relevance increases, instruction and assessments require students to mobilize knowledge to solve problems in simulated, near-real, or fully authentic contexts: laboratories, practical exercises, projects, case studies, simulations, guided interventions, internships or practicum activities, and the production of tangible outputs such as prototypes, portfolios, analyses for real clients, professional documents, validated products (ICLE, 2012). These tasks foreground judgment under constraints and make competence visible as performance rather than recall.

By mapping outcomes and, consequently instruction and assessment across these types of training experiences, the framework helps curriculum teams move from general intentions ("students will understand/apply/solve") toward explicit evidence conditions: what students must do, under what circumstances, and with what level of cognitive challenge and authenticity. This strengthens alignment between intended outcomes, teaching strategies, and assessment, while making expectations transparent rather than implicit and instructor – dependent (Creţu, 2019).

Making Learning Progression Visible: Building Autonomy and Responsibility

A significant benefit of this framework is that it allows autonomy and responsibility to be treated as vectors of performance rather than as generic "add-ons." In practice, autonomy is visible in how a task is carried out: the degree of initiative, the quality of judgment, the management of uncertainty, self-monitoring and revision, and the ability to proceed with less scaffolding. Responsibility is equally embedded in performance: anticipating consequences, justifying choices with evidence, respecting standards, managing risk, and accounting for ethical and professional implications. Two students may produce similar final products while differing profoundly in the guidance they required and the robustness of their decision-making. So autonomy and responsibility must be written into the conditions of outcomes, not appended as vague statements. This aspect is essential for longitudinal coherence and for attempting to reduce the gap between academic leaning and labour market expectations (Finch et al., 208). When autonomy and responsibility are formulated separately, programmes often end up repeating the same generic descriptors year after year ("works independently," "shows responsibility"), obscuring real progression. When embedded within the framework's logic of increasing rigour and relevance, the developmental storyline becomes concrete: early outcomes can legitimately include guidance and structured contexts, while later outcomes require self-direction and accountability in ill-structured, integrated, or authentic situations.

A concrete way to secure progression is to anchor expectations in the European Qualifications Framework (EQF), especially Levels 6–8 (bachelor's, master's, doctoral). EQF descriptors (2017) scale not only knowledge and skills, but also responsibility and autonomy, offering a shared reference for what "more advanced" means across disciplines:

- EQF Level 6 (Bachelor's): emphasizes competent performance in known procedures and generally predictable contexts. Outcomes may include scaffolding, such as applying a given method to a structured case or justifying choices using provided criteria. The graduate profile does not typically imply strategic leadership or redefining problem spaces.

- EQF Level 7 (Master's): shifts toward autonomous judgment in complex, unpredictable contexts. Graduates decide what should be done, justify choices, integrate knowledge across fields, and manage or transform situations that require new approaches. Outcomes can credibly involve coordinating the work of others and taking responsibility for professional and ethical impact.
- EQF Level 8 (Doctoral): culminates in the capacity to develop new knowledge, operating at the frontier of a field through research and innovation, demonstrating substantial authority, integrity, and sustained commitment to generating new ideas and processes.

Daggett's model complements EQF by translating these descriptors into teachable and assessable patterns: as rigour and relevance rise, the expected level of self-direction and accountability rises accordingly. Progression is no longer reduced to "harder content," but becomes a shift in performance conditions (predictable to unpredictable), scope of responsibility (individual contribution to coordination and transformation), and nature of outputs (application to the creation of new knowledge).

Used as a guide for writing learning outcomes, the Rigour/Relevance Framework functions as a practical grammar for making outcomes "performable." It helps programmes specify both the sophistication of thinking students must demonstrate and the conditions under which that thinking counts as credible evidence of learning. When positioned intentionally along the two dimensions, outcomes stop being generic statements and start guiding instructional design, assessment choices, and students' progression from novice performance to professional expertise.

6. Conclusion

Although the learning outcomes paradigm has been widely adopted in European higher education as a means of supporting student-centred learning and transparency of qualifications, its implementation often remains superficial. When learning outcomes function mainly as formal requirements rather than as guiding principles for curriculum design, teaching, and assessment, their transformative potential is limited. Strengthening their practical use is therefore essential for aligning higher education programmes with the development of meaningful professional competencies.

Formulating educational goals in the form of learning outcomes also legitimizes a broader conception of performance. Outcomes can capture not only correct routines and problem-solving strategies, but also professional

values and functional attitudes - how graduates engage strategically, regulate their learning, relate responsibly to others, communicate with empathy, and sustain quality under constraints. In line with what cognitive psychology and learning sciences emphasize, durable learning goes beyond storage of information towards the construction of mental models, reasoning strategies, and patterns of judgment that can be retrieved, adapted, and transferred. "Knowing" is inseparable from "being able to use what one knows." By aligning intended outcomes, teaching, and assessment through a structured progression of rigour, relevance, autonomy, and responsibility, the construction of expertise becomes visible as a step-by-step process—transparent to students, credible to employers, and coherent across an entire curriculum.

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