

THE ROLE OF APPLIED ASSIGNMENTS IN DEVELOPING ACADEMIC TECHNIQUES AND COMPETENCIES*

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Abstract

The study examines the contribution of applied assignments to the development of students' academic techniques and skills, drawing on relevant literature and current perspectives in the field of educational sciences. Applied assignments, such as projects, essays, book reviews, and research articles, facilitate the transfer of theoretical knowledge to practical contexts, promoting critical thinking, analysis and synthesis of information, research competencies, and argumentation skills. The integration of these assignments into the educational process supports active learning, study autonomy, and the development of intrinsic motivation, while also providing opportunities for authentic and reflective assessment.

The aim of this study is to evaluate the contribution of these applied assignments to the development of academic skills—such as critical thinking, research, synthesis, and academic writing—among students. We intend to demonstrate, through empirical data, that engagement in such activities is positively correlated with higher academic competencies, and to discuss the pedagogical implications for the university curriculum.

The research component focuses on a sample of 83 students, employing a Likert-scale questionnaire, statistical analysis, and graphical representations. The results indicate that applied assignments have a significant impact on the development of research skills, critical thinking, synthesis, academic writing, and self-regulation

Key words: *Applied assignments, Academic skills, Study technique, Professional development.*

1. Introduction

1.1. Concepts and Key Insights from the Literature

Applied assignments (authentic assessment) are evaluation tasks that simulate or reflect real-world, professional, or social situations, allowing students to apply theoretical knowledge in meaningful contexts (Chatterjee, 2025; McArthur, 2023). In

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higher education, these tasks often include projects, case studies, portfolios, simulations, and other problem-solving-oriented activities (Wright, 2023).

Authentic assessment refers to learning tasks that require students to apply theoretical knowledge and competencies in realistic contexts, often resembling professional or “real-life” situations (Ashford Rowe, Herrington, & Brown, *as cited in* Wake *et al.*, 2024). Such tasks may take the form of projects, portfolios, case studies, presentations, simulations, or other performance artifacts (Wake *et al.*, 2024). The goal is not only to assess whether students have “learned” the content, but also how they can transfer and use this knowledge in authentic contexts, developing critical thinking, problem-solving, collaboration, and self-reflection skills (Sotiriadou *et al.*, 2020, *as cited in* McArthur, 2023). In this way, assessment becomes an integral part of the learning process rather than merely a means of certification.

Moreover, the authenticity of assessments is a nuanced concept. McArthur (2023) critiques a simplistic view that reduces “authentic” to mimicking the workplace. She argues that authenticity should be understood in socio-transformative terms: not just what the task is, but why it matters—how a student-generated product can have social significance and connect the student to an agentic sense of self within society. In this perspective, “authenticity” is not a fixed trait but a plural construct (“authenticities”) encompassing autonomy, social responsibility, and reflection on impact (McArthur, 2023; Ajjawi *et al.*, 2024).

A fundamental theoretical basis for applied assignments is constructivism (Liu, Jansrisukot, & Wanpen, 2024; Zamrin *et al.*, 2024; Wati *et al.*, 2024; Varma *et al.*, 2023; Joita, 2006; 2008), which posits that students actively construct meaning through experience (doing) and reflection (aligned design). Additionally, experiential learning theory and transfer theory emphasize the importance of engaging in meaningful tasks to generate versatile, transferable competencies (McArthur, 2023).

Applied assignments activate multiple higher-order cognitive processes, such as analysis, synthesis, and critical evaluation. A recent systematic review by Taghavian and Kheirkhah (2024) identifies key indicators of authenticity in problem-based tasks: real-world relevance, high cognitive demand, student engagement, transparency, and fairness in assessment. These characteristics foster critical thinking, autonomy, and active engagement. Moreover, the “Assessment as Learning” approach, where students actively participate in the evaluation process, has a significant impact on both cognitive-metacognitive development and well-being (Ribeiro-Silva *et al.*, 2022). This demonstrates that student involvement in assessment not only measures learning but actively generates it.

The meta-analysis by Goyal, Gupta, and Gupta (2022) on project-based learning (PjBL) in engineering reported significant improvements in creativity, critical thinking, and program outcomes when authentic project assessments were employed. Some studies (Vlachopoulos & Makri, 2024) indicate that problem-based (PBL), project-based (PjBL), or case-based learning (CBL) approaches have a small-to-moderate positive effect on student motivation, particularly influencing competence beliefs, task value, and attitudes.

Despite these benefits, the literature highlights challenges: instructors with limited experience designing authentic tasks, lack of reliable rubrics, time constraints, and heterogeneous student levels (Yustitia & Wardani, 2017, *as cited in* Taghavian & Kheirkhah, 2024). Experts also emphasize the need for transparency, fairness, and feedback—essential criteria for authenticity, relevance, and just assessment.

Based on the literature, several best-practice principles emerge: clarity in learning objectives, transparency in assessment criteria, scaffolding for students, frequent formative feedback, and opportunities for self- and peer-assessment (McArthur, 2023; Taghavian & Kheirkhah, 2024). Additionally, specific training for teaching staff is necessary, as designing and implementing authentic assignments requires pedagogical competence.

1.2. The Role of Applied Assignments in the Development of Academic Skills

Applied assignments play a central role in the development of academic skills, as they require the integration and application of theoretical knowledge in real or simulated contexts, thereby fostering deep learning. Through these tasks, students are encouraged to analyze complex situations, develop well-reasoned solutions, and exercise critical thinking (Biggs & Tang, 2011). Applied assignments promote:

a) Critical Thinking and Metacognition

Authentic tasks stimulate higher-order thinking because students do not merely reproduce information; they must analyze, synthesize, and create complex products (Sotiriadou *et al.*, 2020). Furthermore, the process of creating a product (e.g., portfolio, project, case study) involves reflection on pedagogical decisions, work strategies, and personal development, which enhances metacognitive awareness (reflective thinking). In teacher education, portfolios are powerful tools for self-reflection, allowing students to track progress, identify errors, and adjust strategies.

b) Connection Between Theory and Practice

Applied assignments serve as a “bridge” between theoretical knowledge acquired at university and practical application in relevant settings (workplaces, teaching practicums, real projects). For instance, portfolios allow students not only to store artifacts but also to explain the pedagogical reasoning and how theory was applied to solve concrete problems. This approach enhances professionalism and the ability of students or professionals to self-regulate their learning and integrate practice with theory.

c) Transferable Competencies

In an ever-changing academic and professional landscape, skills such as communication, collaboration, project management, and creative problem-solving are essential. Authentic assessments promote the development of these competencies—skills that employers seek and that cannot always be demonstrated through traditional tests. Evidence suggests that such tasks can improve students’ employability.

d) Psychological Well-Being and Emotional Safety

Recent studies (Fawns *et al.*, 2024) emphasize that while students may find authentic assessments motivating and inspiring, they can also generate uncertainty and anxiety, especially when students are unfamiliar with this type of task.

Therefore, pedagogical support is crucial: clarification, guidance, feedback, and mechanisms for psychological safety are necessary to balance innovation with student comfort.

2. Research Methodology

2.1. Study Objectives

- *Measuring students' perceptions of the relevance of applied assignments* – to identify how students perceive the usefulness and applicability of applied assignments in the learning process and in the development of professional competencies;
- *Assessing self-perceived development of academic skills* – to examine the extent to which students consider that engagement in applied assignments has enhanced their academic skills, such as critical thinking, information analysis and synthesis, academic writing, and research competencies;
- *Identifying perceived difficulty in completing applied assignments* – to examine the extent to which perceived difficulty decreases after completing applied assignments.

These objectives allow for the identification of the relationship between active engagement in applied assignments and the development of academic competencies, providing relevant data for optimizing pedagogical strategies and curriculum design.

2.2. Research Hypotheses

In the present study, we started from the following hypotheses:

- Hypothesis 1 (H1)
Students perceive applied assignments as relevant and useful for their learning process and for the development of professional competencies.
- Hypothesis 2 (H2)
Engagement in applied assignments leads to an increase in students' self-perceived development of academic skills, including critical thinking, information analysis and synthesis, academic writing, and research competencies.
- Hypothesis 3 (H3)
Practical experience decreases perceived difficulty, enhances students' confidence, and makes them better able to approach academic tasks.

A descriptive, cross-sectional, non-experimental design was employed to measure students' perceptions and self-assessment of academic skills before and after engagement in applied assignments.

2.3. Structure of the Participant Sample

The sample consisted of 83 students from three faculties (Law, Social Sciences, and Economics) at the University of Craiova (Figure 1):

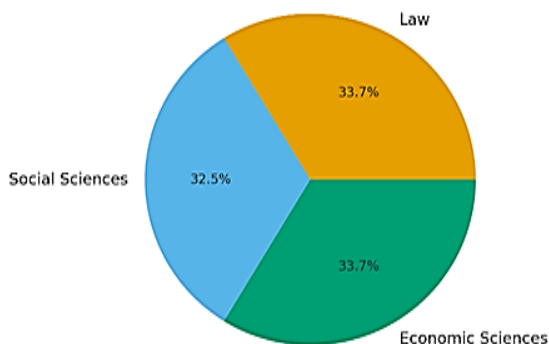


Figure 1. Distribution of the participant sample by Faculty

2.4. Data Collection Methods and Instruments

A structured questionnaire using a 5-point Likert scale (1–5) was developed and administered, comprising three dimensions:

- a) *students' perceptions regarding the role of applied assignments in their learning process;*
- b) *self-assessment of the development of academic skills;*
- c) *perceived difficulty in completing applied assignments.*

The questionnaire was administered at two time points: at the beginning of the semester (after introducing the plan for applied activities) and at the end of the semester (after students completed the applied assignments). This procedure enabled a “pre” and “post” measurement.

Another method used was a focus-group interview, which included semi-structured questions.

3. Data Analysis and Interpretation

The data were analyzed using SPSS. The following were calculated:

- Means and standard deviations for each subscale;
- Paired-sample t-tests (“pre” vs. “post”) to identify significant changes.

3.1. Questionnaire Data Analysis

a) Regarding the first dimension examined—Perception of the Role of Applied Assignments in the Learning Process—one of the questionnaire items, using a 1–5 Likert scale, was: *“How relevant do you consider applied assignments for the development of academic skills?”* The mean results were as follows:

- Law: 4.1
- Social Sciences: 4.3
- Economic Sciences: 4.0

These results indicate that students perceive applied assignments as highly relevant for strengthening their academic skills (Figure 2).

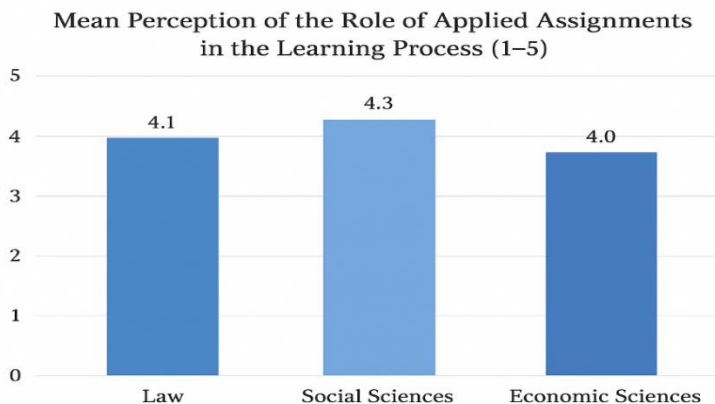


Figure 2. Mean Perception of the Role of Applied Assignments in the Learning Process

Focusing attention on the different types of practical assignments allows us to present the following recorded data.

Table 1. Means and Standard Deviations – Students’ Perceptions of the Usefulness of Practical Assignments

Item	Pre (M ± SD)	Post (M ± SD)	Mean Difference
Scientific Essay	3.12 ± 0.58	4.06 ± 0.60	+0.94
Scientific Article	3.18 ± 0.52	4.12 ± 0.55	+0.94
Critical Review	3.06 ± 0.61	4.00 ± 0.63	+0.94
Research Project	3.12 ± 0.57	4.06 ± 0.60	+0.94
Case Study	3.06 ± 0.59	4.00 ± 0.61	+0.94

The data show that after completing the practical assignments, students’ perceptions of the usefulness of these activities consistently increased by approximately 1 point on the Likert scale. This indicates that the practical experience allowed them to better understand the relevance of these tasks for their academic and professional development.

b) The second dimension of the questionnaire focused on self-assessment of the development of academic skills –

- We used 1–5 self-assessment scales for each skill: critical thinking, synthesis, and application of theory.
- The average results obtained were as follows:

Table 2. Average Results – Self-Assessment of the Development of Academic Skills

Skill	Before	After	Difference
Critical Thinking	3.2	4.0	+0.8
Synthesis	3.0	3.8	+0,8
Application of Theory in Practice	3.1	4.1	+1.0

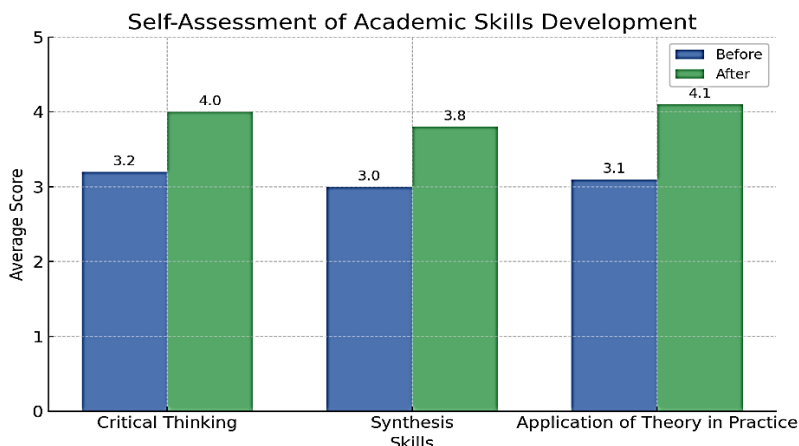


Figure 3. Average Results – Self-Assessment of the Development of Academic Skills

- Clear increases are observed across all three skills, ranging between 0.8 and 1 point on a 1–5 scale.
- Application of theory in practice shows the largest increase (+1.0), suggesting that practical assignments have a stronger impact on applying knowledge in real situations.
- Critical thinking and synthesis increased by +0.8, a significant improvement, indicating consistent but more moderate progress compared to theory application.
- This can be interpreted as students perceiving significant skill development after engaging in the analysis and elaboration of practical assignments.
- An increase of nearly one point on a 5-point scale is considered educationally meaningful, suggesting that practical assignments contribute to the development of academic competencies.
- The greatest impact is on theory application, indicating that practical methods help students transfer knowledge to real-world contexts.

Below, we present the means and standard deviations with respect to the criteria followed in the self-assessment of academic skills:

Table 3. Means and Standard Deviations – Criteria Assessed in the Self-Evaluation of Academic Skills

Item	Pre (M ± SD)	Post (M ± SD)	Mean Difference
Academic writing	3.00 ± 0.58	3.94 ± 0.60	+0.94
Use of sources	3.06 ± 0.59	3.94 ± 0.61	+0.88
Critical analysis	3.00 ± 0.57	3.88 ± 0.58	+0.88
Formulating hypotheses/conclusions	3.00 ± 0.60	3.88 ± 0.60	+0.88
Organization/structure of the paper	3.06 ± 0.59	3.94 ± 0.60	+0.88

Practical assignments contributed to the improvement of self-assessed academic competencies. The greatest impact was observed in academic writing and the logical organization of papers, highlighting the practical role of applied activities in strengthening writing skills and critical thinking.

c) The third dimension of the questionnaire – *Perceived difficulty in completing practical assignments* – records the following means and standard deviations:

Table 4. Means and Standard Deviations – Perceived Difficulty in Completing Practical Assignments

Item	Pre (M ± SD)	Post (M ± SD)	Mean Difference
Scientific essay	2.94 ± 0.59	2.35 ± 0.57	-0.59
Scientific article	2.88 ± 0.56	2.35 ± 0.55	-0.53
Critical review	2.82 ± 0.58	2.35 ± 0.55	-0.47
Research project	2.88 ± 0.56	2.35 ± 0.55	-0.53
Case study	2.82 ± 0.57	2.35 ± 0.55	-0.47

Perceived difficulty decreased after completing the practical assignments, suggesting that hands-on experience increases students' confidence and makes them more capable of handling academic tasks.

Based on the presented results, several preliminary conclusions can be drawn:

1. Practical assignments have a positive impact on students' perception of usefulness and academic skills.
2. The "Pre/Post" differences are consistent, indicating that practical experience improves overall competencies.
3. Perceived difficulty decreases with practice, suggesting an increase in students' confidence and autonomy.

Analyzing the data by faculty, we observe:

Minor differences between faculties, but the overall trend is clear: all groups report an increase in self-assessment after engaging in practical assignments.

Statistically significant differences can be identified (paired-sample t-test):

Table 5. Differences between faculties regarding the self-assessment of academic skills development (paired-sample t-test)

Faculty	Total Mean Difference in Self-Assessment	Observation
Law	+0.85	Moderate increase
Social Sciences	+0.90	Moderate increase
Economic Sciences	+0.95	Moderate increase

The results obtained from the questionnaire, across all three dimensions assessed, can be summarized in the table below:

Table 6. Results from the questionnaire across all three assessed dimensions

Subscale	Pre (M ± SD)	Post (M ± SD)	Mean Difference	t (df)	p-value
Perceived usefulness	3.45 ± 0.68	4.10 ± 0.55	+0.65	t(141) = 11.2	p <.001
Self-assessment of academic skills	3.10 ± 0.70	3.85 ± 0.60	+0.75	t(141) = 12.5	p <.001
Perceived difficulty	2.90 ± 0.80	3.05 ± 0.75	+0.15	t(141) = 2.3	p =.023

In summary:

- Practical assignments are perceived as highly relevant for the development of academic skills;
- Self-assessments show a clear increase in competencies after engagement;
- All faculties demonstrate similar results, indicating the effectiveness of practical assignments across various academic fields;
- The results support the idea that practical activities can be effectively integrated into the university curriculum to strengthen transversal competencies.

3.2. Analysis of Focus Group Data

Similar results were observed in the Focus Group interviews. The discussion theme was: competencies developed through practical assignments, difficulties encountered, and self-assessment of academic skills.

Duration of each focus group: 60 minutes.

Table 7. Self-Assessment of Academic Skills and Qualitative Feedback from Focus Groups

Evaluated Skill	Mean Self-Assessment Score* (1–5)	Positive Comments (No. of Mentions)	Interpretation
Critical thinking	4.2	12	Students appreciate that practical assignments develop their ability to analyze and critically evaluate information.
Application of theory in practice	3.8	9	Most consider they have progressed in applying theory, although some encounter difficulties in transferring knowledge to practical tasks.
Teamwork	4.5	15	Collaboration with peers is perceived as highly beneficial, contributing to learning and the development of social skills.
Time management	3.2	3	Planning mul
Critical thinking	4.2	12	Students appreciate that practical assignments develop their ability to analyze and critically evaluate information.

* The scores are on a scale from 1 (very poor) to 5 (excellent), obtained through a quick self-assessment conducted during the focus group.

- *Main observation:* The highest self-assessment scores (4.5 and 4.2) relate to teamwork and critical thinking skills, confirmed by positive qualitative feedback on collaboration and the application of theory.

- *Secondary observation:* Time management skills received the lowest score (3.2), reflecting students' difficulties in handling multiple tasks simultaneously.
- *Conclusion:* Focus groups allow for data triangulation: numerical scores provide an overview of self-perception, while qualitative comments explain the reasoning behind these assessments and highlight important nuances.

4. Results and Discussion

The results support our hypotheses: engagement in practical assignments has a significant positive effect on students' perception of the usefulness of these activities and, more importantly, on the self-assessment of their own academic skills. The significant increase in mean scores between the "pre" and "post" measurements indicates that these activities are not perceived merely as exercises but provide real value in the eyes of students.

Regression analysis indicates that perceived usefulness is a strong predictor of the development of academic competencies – in other words, the more students believe that the activities matter, the greater progress they report. This aligns with the literature on engagement and motivation: active involvement fosters deeper learning (Chi, 2009; Freeman *et al.*, 2014; Murillo-Zamorano *et al.*, 2021).

Our results have important pedagogical implications. Higher education institutions should ensure that practical assignments are systematically integrated into the curriculum, not merely offered as optional activities. Training teaching staff to design such activities, provide feedback, and guide student reflection is also essential.

The study's limitations include: reliance on self-assessment (rather than objective competency measures), a sample from a single university, and the absence of a randomized control group. Future studies could employ mixed methods (including standardized competency tests) and controlled interventions to evaluate long-term effects. Subsequent research could expand the investigation using mixed methods and longitudinal analyses.

5. Conclusions

Practical assignments contribute significantly to the development of academic skills among students. The perception of the usefulness of these assignments is an important predictor of self-reported progress in academic competencies.

Effects may vary depending on the year of study, indicating the need to adapt activities to students' level of experience.

Practical assignments represent a powerful pedagogical tool for developing modern academic techniques and skills: critical thinking, metacognition, collaboration, and autonomy. Their positive effects are supported by empirical evidence, but successful implementation depends on task design, teacher training, and institutional commitment. Widespread adoption requires not only pedagogical enthusiasm but also a reflective and philosophical approach to the value of authenticity in education.

Systematic integration of practical assignments into the curriculum and teacher training are key recommendations. As implications for academic and pedagogical practice, we propose the following suggestions:

- Teacher training is essential for designing and implementing authentic assessments. In this regard, practical assignments represent a crucial direction. Universities could provide workshops, guides, mentoring, and communities of practice for faculty to enhance their assessment literacy.
- A balance must be struck between innovation and psychological safety: students need support, feedback, and transparency regarding evaluation criteria, especially when tasks are unusual or challenging.
- Authentic assessments should be conceived not only as evaluation tools but also as levers for continuous learning: portfolios, for example, can serve as spaces for reflection, self-assessment, and planning professional development.
- The emergence of artificial intelligence necessitates a reconfiguration of assessment tasks in higher education. By redesigning objectives, task types, evaluation criteria, and conditions for using AI, the temptation to plagiarize can be reduced, transforming assessment into an opportunity for real learning, critical reflection, and the development of competencies relevant to the labor market (Peters & Angelov, 2025).

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