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Original article

Design of an assessment task for self-regulated learning of education professionals

Diseño de una tarea evaluativa para el aprendizaje autorregulado de profesionales de la educación

Projeto de uma tarefa de avaliação para a aprendizagem autorregulada de profissionais da educação

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ABSTRACT

The development of self-regulated learning is crucial for education professionals, as it allows educators to reflect on their own teaching, identify areas for improvement, and adapt their methods to meet the needs of students. This work aims to analyze how the implementation of an assessment task can enhance educators' ability to self-regulate their learning. To achieve this objective, the qualitative empirical technique of group interviews with participants and the quantitative empirical technique of studying grade frequencies were used. In addition, rational methods such as analytical-synthetic and inductive-deductive were used to assess and interpret the empirical data collected. The results indicated that both the practical execution during the course and the oral defense of the final assessment task contributed positively to the development of self-regulated learning of the

Translated from the original in Spanish

participants. The initiative presented in this study can be a path of professional development that directly contributes to raising self-regulatory knowledge and skills that allow constant autonomous preparation for education professionals.

Keywords: self-regulation; professional development; educational assessment.

RESUMEN

El desarrollo del aprendizaje autorregulado es crucial para los profesionales de la educación, pues permite a los educadores reflexionar sobre su propia enseñanza, identificar áreas de mejora y adaptar sus métodos para satisfacer las necesidades de los estudiantes. Este trabajo tiene como objetivo analizar cómo la implementación de una tarea evaluativa puede potenciar la capacidad de los educadores para autorregular su aprendizaje. Para dar cumplimiento al objetivo, se empleó la técnica empírica cualitativa entrevista grupal a los participantes y la técnica empírica cuantitativa estudio de frecuencias de calificaciones. Además, se emplearon métodos racionales como el analítico-sintético y el inductivo-deductivo, para la valoración e interpretación de los datos empíricos recolectados. Los resultados indicaron que, tanto la ejecución práctica durante el curso, como la sustentación oral de la tarea evaluativa final, contribuyeron positivamente al desarrollo del aprendizaje autorregulado de los participantes. La iniciativa presentada en este estudio puede ser una vía de desarrollo profesional que tribute directamente a elevar conocimientos y habilidades autorreguladoras que permitan una constante preparación autónoma a los profesionales de la educación.

Palabras clave: autorregulación; desarrollo profesional; evaluación educativa.

RESUMO

O desenvolvimento da aprendizagem autorregulada é crucial para os profissionais da educação, pois permite que os educadores reflitam sobre seu próprio ensino, identifiquem áreas de melhoria e adaptem seus métodos para atender às necessidades dos alunos. Este artigo tem como objetivo analisar como a implementação de uma tarefa de avaliação pode aumentar a capacidade dos educadores de autorregular sua aprendizagem. Para atingir o objetivo, foram utilizadas a técnica empírica qualitativa de entrevistas em grupo com os participantes e a técnica empírica quantitativa

de um estudo de frequências de notas. Além disso, métodos racionais como o analítico-sintético e o indutivo-dedutivo foram usados para avaliar e interpretar os dados empíricos coletados. Os resultados indicaram que tanto o desempenho prático durante o curso quanto a apresentação oral da tarefa de avaliação final contribuíram positivamente para o desenvolvimento da aprendizagem autorregulada dos participantes. A iniciativa apresentada neste estudo pode ser um caminho para o desenvolvimento profissional que contribui diretamente para o desenvolvimento do conhecimento e das habilidades de autorregulação que permitem a preparação autônoma contínua dos profissionais da educação.

Palavras-chave: autorregulação; desenvolvimento profissional; avaliação educacional.

INTRODUCTION

In today's educational context, teaching professionals face the challenge of not only imparting knowledge, but also fostering self-regulated learning in their students. However, many educators lack the tools and strategies necessary to manage their own learning process effectively. This lack of self-regulation can result in less efficient pedagogical practices, which negatively impacts student performance and learning.

Addressing the issue, this research studies the influence of a specific assessment task on the self-regulation of learning of education professionals. The task is part of a course on assessment offered by the Master's Degree in Didactics at Artemisa University, designed to provide educators with the necessary skills to allow them to reflect on their practice and promote more autonomous learning.

Self-regulation of learning and teacher professional development programs

From a sociocognitive perspective, Zimmerman (2013) has proposed different models that have allowed him to explore the self-regulatory processes of learning. The empirical evidence he has obtained in this field has led this author to establish that students who proactively set ambitious goals, intentionally monitor their learning, apply effective strategies and adapt to personal feedback not only acquire skills more quickly, but also maintain their motivation to continue learning.

According to this sociocognitive perspective, the learner is committed to the distribution, programming, execution and evaluation of the learning practice and, consequently, learns to

establish objectives and strategies to solve his tasks; as well as to self-monitor how he progresses with respect to what has been established, which includes redirecting actions if necessary and evaluating the effectiveness of his learning activity. This corresponds directly with Zimmerman's (2013) cyclical model for self-regulated learning in which three phases alternate: preparation of actions; execution, supervision and control of actions; self-reflection on what has been done.

It is necessary to consider that self-regulation of learning is not innate, but is acquired and developed throughout life (Trías *et al.*, 2023). Thus, self-regulated learning strategies are taught and learned in the teaching-learning process, which can benefit learners of different levels in this field. In this sense, some Cuban experiences can be cited to promote self-regulated learning:

- Valdez and Armas (2022) demonstrated that with the use of Information and Communication Technologies (ICT) in the teaching-learning process, it is possible to stimulate in students the development of self-regulation learning skills.
- Vizcaino *et al.* (2024) determined that deficiencies in this type of learning are related to organization, time and resource management, information search, and motivation to study.
- In the training of education professionals, Senra *et al.* (2023) presented a psychopedagogical conception for metacognitive stimulation, which is essential for the development of self-regulated learning.

Directly related to teacher professional development, we can cite the research results carried out by Theobald (2021) at the tertiary level, which could be useful for designing and implementing professional development programs for the continuing training of teachers, since this author recommends interventions to promote metacognitive reflection, as a way to identify how, when and why to use the strategies that are being developed.

In relation to teacher training programs, Kramarski and Heysman (2021) consider three ways to carry them out: teaching-learning of self-regulation to teachers themselves; how to put into practice Self-regulation during the teaching-learning process and the teaching of self-regulatory strategies aimed at students. According to Trías *et al.* (2023), research has focused primarily on the third path and suggests considering proposals that articulate the three paths to provide teachers with greater opportunities to master their teaching and learning.

A proposal in this same direction was implemented by Cleary *et al.* (2022), who articulated three phases in an intensive training for teachers: the first focused on the teacher's own self-regulation,

the second on imagining the teaching of self-regulation strategies in their classes, as well as analyzing expert classes, and, in the third, they implemented changes in the classes and advised based on them. The results indicate that teachers benefited to different degrees from the intervention.

Teaching tasks as a starting point for self-regulated learning

Self-regulated learning is distinguished by being contextual, flexible, and constantly changing (Valencia, 2022). Its contextual nature is derived from the specific academic task to be solved and the context in which it occurs. As the regulation of learning varies according to the cognitive, metacognitive, and motivational efforts required in each situation, a learner does not always self-regulate his or her learning in the same way, which corresponds to the flexibility and constant changes in this type of learning.

According to a study by Theobald (2021), almost 60% of research on self-regulated learning focuses on extracurricular programs, disconnected from students' curricula, which limits their contextual relevance. Therefore, it is necessary to investigate the integration of self-regulated learning into curricular curricula, considering the particularities of students through the interaction between teachers and students. Thus, interventions could be better aligned with the context, making them more flexible and dynamic.

The use of tasks to achieve self-regulated learning is a topic addressed by authors such as Guàrdia *et al.* (2024), who address them by implementing generative artificial intelligence to promote more efficient self-regulated learning. In turn, Trías *et al.* (2024) analyze the relationships between tasks, self-regulated learning, emotional regulation, motivational variables (self-efficacy, task value, sense of belonging) and the socioeconomic context. These investigations provide valuable ideas contextualized to the current situation of technological development.

Valencia (2020) offers guidelines for designing tasks that foster self-regulation, organized into two axes: structure and assessment. Tasks should be open and challenging, allowing multiple solutions and requiring complex intellectual skills. It is essential that they integrate students' prior knowledge, establishing a starting point for learning goals and assessment. In addition, they should be authentic, linked to the learners' real context, which increases their interest and motivation.

On the other hand, assignments should be clear, specifying objectives, products, instructions and deadlines. It is essential to encourage students' autonomy, allowing them to decide on the structure and execution of the task, as well as to choose the level of challenge and the materials to be used.

Applying the above ideas will allow for a deep analysis and a greater understanding of the task. This same author proposes that another axis to consider in the design and execution of teaching tasks so that they contribute to the promotion of self-regulated learning is evaluation, in which the formative nature must predominate, although the summative nature must also be present. The distinctive characteristic of formative evaluation, also called evaluation for learning, is feedback (Stobart, 2021).

It is important to consider that effective feedback to encourage self-regulated learning requires an environment in which errors are examined by teachers and students as opportunities to improve learning and not as something critical that should be penalized (Campuzano *et al.*, 2021). Formative assessment is linked to improving learning because it provides guidance on the tasks being performed, provides information on underlying processes and guidance on attitudes, relationships and behaviour; and, finally, provides guidelines on the strategies that have been used for self-regulation of learning (Hernández *et al.*, 2021).

Regarding the evaluation of teaching tasks, it is necessary to generate clear criteria that students know in advance, so that they understand the expectations and performance standards; in addition, it is important to offer feedback that corresponds to these criteria and that activates self-assessment processes, which develops students' critical thinking, allows them to reflect on their performance and motivates them to establish strategies to improve.

Rubrics can be an effective tool for this purpose, as they describe performance levels and clarify progress made in each of the assessment indicators. Assessment should be summative and formative, offering grades along with feedback that identifies successes, errors and strategies for improvement.

The objective of this study is to analyze how the implementation of an assessment task can enhance educators' ability to self-regulate their learning. By understanding this relationship, we seek to offer recommendations that contribute to the development of effective teaching strategies that not only improve the training of educators, but also positively impact the quality of their students' learning.

MATERIALS AND METHODS

This study was carried out with 33 education professionals (22 women and 11 men), from the third edition of the Master's Degree in Didactics offered by the University of Artemisa, in the course "Evaluation in the teaching-learning process", which took place during the months of March and April 2022. The composition of the group was very heterogeneous, in relation to the professional training and work profile of the participants: university graduates from different studies who perform various functions (teachers in different types and levels of teaching, municipal and provincial education methodologists, psychopedagogues in primary schools and a drama teacher).

The intervention carried out was a professional development initiative to promote self-regulated learning with this group of educators, in order to improve their knowledge and skills in this field, thus helping them to become interested in the development of self-regulatory learning strategies in their students, as a guarantee of improving the quality of education they can provide in the institutions in which they work.

General methodology

The contents of the course "Assessment in the teaching-learning process" were taken into account (assessment in the teaching-learning process. Historical approach. Trends in meanings and terms in use; control and evaluation, relationship of evaluation with other categories of the teaching-learning process. Functions of evaluation in the teaching-learning process. The purpose of the evaluation. Participants in the evaluation. Grading. Elaboration of the evaluative judgment, interpretation and use of the evaluation. Formative evaluation and summative evaluation of students; cognitive performance levels and learning assessment. Assimilation levels and cognitive performance levels in the teaching-learning process. Accuracy of students' cognitive performance levels through evaluation; planning of evaluation in the teaching-learning process, specification table, evaluation rubrics, open format tests and objective tests).

From the first face-to-face meeting, a final teaching task was oriented towards the development of self-regulated learning of the participants. This task was followed up during the course period and was orally supported by each student before the group at the sixth meeting. The grading was based on the established criteria. The elaboration of the final exercise of the course on self-regulated

learning was assessed based on the grades obtained by the students in said work and a group interview carried out once the oral discussions of it had concluded.

This was an assessment task that aimed to promote self-regulation of learning. It consisted of preparing an assessment plan for the teaching-learning process of a subject that each student in the course taught in their educational practice. The time planned to carry out this work was six weeks, coinciding with the period in which the course was developed. During this time, the exchange of opinions between the participants and between them and the teacher was encouraged; in addition, tutorials were held to clarify doubts in relation to the criteria that guided the completion of the work. This made possible a constant use of feedback as a way to enhance formative assessment. The oral delivery and defense constituted the final evaluation of the course for each participant.

The teaching task aimed to verify to what extent the following objectives were achieved:

- Characterize the concepts of assessment for learning (formative assessment) and assessment of learning (summative assessment).
- Build a table of specifications for a specific topic of the subject being taught, as part of the evaluation planning in the teaching-learning process.
- Develop authentic teaching tasks for formative assessment of students, as well as the corresponding assessment rubrics.
- Design test-type instruments for the summative evaluation of a topic in the subject taught.

Other assessments carried out during the course provided evidence of the achievement of these objectives, through tasks that allowed the assessment of their professional skills to understand and deal with the assessment in the teaching-learning process of the subject they teach. Therefore, this final exercise served to verify the general mastery of the course content. As a teaching task, they were asked to plan the assessment of and for the learning of a topic in the subject they taught. As a guide to carry out the work, the guidelines presented were offered (Table 1).

Table 1. Criteria to be taken into account for the evaluation of the final assignment of the course

Aspect	Criteria for the preparation	Punctuation
Qualification	Allegorical to work, about 15 words	0.5 point
Introduction	Theoretical references related to evaluation in the teaching-learning process and its planning in particular, referencing consulted authors. Locate the reader in the subject and the topic, justify why the topic is selected. State an objective for the work	3 points
Development	For the selected topic: learning objective(s); knowledge system; specification table (learning indicators for each knowledge, assimilation level for each indicator, identification of instrument for formative assessment of each indicator); assessment rubric for one of the objectives (state a task to meet the objective and construction of the corresponding rubric) and objective test for summative assessment of the learning indicators.	6 points
References	Adjusted to APA standards, 6th edition	0.5 point
Total		**10 points**

Source: Own elaboration

The assignment was graded based on the following aspects:

Bad (between 0 and 4.9 points): does not perform the task or does it superficially.

Regular (between 5 and 6.9 points): the introduction and development are carried out, but superficially.

Good (between 7 and 8.9 points): the introduction and development are original and in-depth.

Excellent (between 9 and 10 points): all aspects considered are elaborated with originality and depth.

The group interview was guided by three questions: How useful has the solution to this task been for your learning about assessment in the teaching-learning process and for your future professional

performance? Were the guidelines provided for its solution demanding and at the same time flexible? What reflections do you have on the learning experience acquired through the completion of the final project?

To assess the data obtained, a quantitative analysis was carried out of the frequency of the participants' ratings and their corresponding interpretation, as well as an analysis of the content of the answers given to the questions in the group interview.

RESULTS

The results obtained in the completion of the task were positive in most cases, although limitations were evident in each of the aspects, which shows that, although progress was made in the learning related to the planning of the evaluation in the teaching-learning process, these need to be perfected by deepening and systematizing the necessary knowledge and skills. Table 2 shows the results of the evaluation of the aspects that were taken into account to grade the work, as indicated in the established guidelines.

Table 2. Rating results for each agreed criterion (N=33)

Aspects	Adequacy of response (absolute frequencies)		
	Very suitable	Adequate	Not suitable
Qualification	25	8	0
Introduction	14	17	2
Development	4	20	9
References	6	22	5

Source: Own elaboration based on participants' ratings

The response was evaluated as very adequate when all the indicators established for a particular aspect were reflected. If one indicator was missing, it was rated as adequate. If two or more indicators were missing, it was assessed as inadequate. In general, the work presented was of good quality, since 61% of the participants achieved grades between Good and Excellent. In addition, the

potential of the proposed exercise to stimulate self-regulatory actions to solve an authentic learning task was demonstrated.

Table 3 presents the general results of the participants, according to the different categories used.

Table 3. General results

Qualification	Frequency	Percentage
Bad	3	10
Regular	10	30
Good	13	39
Excellent	7	21

Source: Own elaboration

In response to the self-regulatory potential of feedback and the length of the task, which makes it possible to complete it in more than one attempt, the three students who were graded as Bad on the first attempt subsequently presented improved work that allowed them to conclude with a grade of Good.

It is important to note that, as part of the feedback process, during the execution of the task and at the time of its oral discussion before the group, the errors committed were used to improve the learning of the participants. In particular, the assessment of the errors that persisted in the final product delivered was a priority.

The results showed an effective contribution of this assessment task to the self-regulation of the participants' learning. This was corroborated by the comments offered by the students during the group interview, which can be summarized as follows:

- The preparation of the final project has been crucial for the students in their learning about assessment in the teaching-learning process and their professional future. This work has provided them with tools to see assessment as a learning process and improve their planning in classes, while increasing their awareness of research in the area, contributing to their professional development.

- The guidelines provided for completing the final project were demanding but flexible. Students appreciated the freedom to choose the topic and subject, which allowed them to focus on content where they felt most confident, but also to address common difficulties among their students. The inclusion of a specifications table and the creation of rubrics, although challenging, pushed them to strive and improve their educational practice.
- The experience of working on the final project was both demanding and enriching, involving considerable effort in searching for and organizing information. Despite not being able to include all the content collected, they were able to review and structure what they had learned, broadening their understanding of assessment planning. This task provides them with a valuable reference for dealing with educational issues in their teaching practice and for recalling the knowledge acquired in the course.

It was interesting that, despite the flexibility in carrying out this work, most of the students chose to select complex topics in the subject they teach their students and in which the latter regularly showed difficulties in their learning results. This attitude of the course participants could be supported by a positive motivation for the final work to be prepared, as well as greater commitment to learning and to the profession.

DISCUSSION

The results achieved in solving the assessment task and the opinions expressed during the interview made it possible to assess how much the completion of said task influenced the development of self-regulated learning of the students involved.

It is considered that one aspect that contributed to the achievement of the positive results obtained was the design of the task itself. On the one hand, the instructions for carrying it out offered sufficient flexibility (each student is free to choose the program, the subject and the topic to plan the assessment), thereby seeking that each participant make decisions adjusted to their learning goals, their strengths and weaknesses.

On the other hand, the guidelines required planning the evaluation of the chosen topic based on a series of essential elements that served as a guide for its implementation. Having this clear, previously agreed-upon guideline offered important support to increase the effectiveness of self-regulation. The aim was to raise authentic demands in terms of its adaptation to the context of the

subject and to the students with whom each participant in the course developed their educational practice, so that it represented a challenge to improve professional skills of greater scope.

Another aspect to highlight in the designed task was the clarity of the instructions offered. These recommendations facilitated the actions to be carried out, as they allowed the learners to better understand the task (demands, product, necessary resources, possibilities of solving it), which helped them decide which strategies to use, how to distribute the time they had available and which resources to look for, among other aspects. These instructions were presented in detail in a table and were thoroughly explained to the participants at the beginning, to ensure their clear understanding. In achieving effective feedback, the clarity of the instructions offered played an essential role. In this study, they were presented in detail in a table, but they can also be made explicit through evaluation rubrics that describe different levels of performance or as questions or scripts that help the student clarify to what extent the progress achieved fully responds to these criteria (Ibarra *et al.*, 2023).

Solving the task required students to activate their prior knowledge, which in this case was based on mastery of the study programs of the subjects they teach. This is important because learning was based on previous knowledge and experiences, which allowed for greater objectivity in setting goals and planning actions to achieve them, by being able to determine what they know about the task and what they need to know to solve it. This type of requirement is essential in the planning phase of self-regulated learning.

It is important to highlight the encouragement of autonomy that was achieved with the designed task, by giving students the possibility of making decisions about the subject and the topic to select in order to achieve the product to be delivered. This was key to promoting processes such as: understanding, application, monitoring and perseverance in solving the task, which are requirements for achieving self-regulated learning.

The feedback provided, both through individual tutoring by the teacher and through the discussion of these assignments before the group, made each participant aware of their strengths and weaknesses in relation to the mastery of this important content for their professional performance, which acted as an essential resource for self-regulation of learning. As Mocarro *et al.* (2024) point out, this process offers relevant data, both to the student and the teacher, about the progress and

performance during and at the end of the task, which makes it possible to suggest options to improve learning and approaches to address it.

It was important to consider not only the feedback provided by the teacher (hetero-assessment), but also that provided by the rest of the students (co-assessment) and that which came from the individual self-reflection process (self-assessment); as this way it was more comprehensive. According to De Brún *et al.* (2022), in particular self-assessment, can be an effective strategy to foster learners' responsibility for their own learning process. Furthermore, this form of assessment promotes metacognition and self-monitoring, which are essential elements of self-regulation (Stobart, 2021).

The treatment given to errors during the execution of the task and at the time of its discussion helped to attenuate the anxiety, mistrust and disorientation that was perceived in some students, since it fostered the creation of a favorable environment to highlight the strengths of the participants in solving the task, to show everyone that failures are common in facing teaching tasks and that they have a solution. This is in line with what was proposed by Campuzano *et al.* (2021), who point out that to promote self-regulated learning, errors should be examined by teachers and students as opportunities to improve learning and not as something critical that should be penalized.

The positive evaluations made by the students showed motivation and interest in learning, which is an important starting point for self-regulation. This is consistent with the studies carried out by Theobald (2021), which revealed a greater effectiveness of training programs in self-regulation learning strategies, when they are carried out with subjects and tasks of specific mastery (curricular programs), which do respond to the situated, adaptive and dynamic nature of self-regulated learning, as referred to by Valencia (2022).

The motivation shown by the students when carrying out the task coincides with the guidelines proposed by Valencia (2020), who point out that tasks of this type (open, challenging and extended over time) require students to set goals and plan actions to achieve them, while promoting the use of complex processing strategies, such as: elaborating, organizing, individualizing and transferring knowledge. The challenge caused by high demands stimulates interest in the task, which, motivationally, favors cognitive efforts and perseverance during the execution of the task, aspects that are key to developing self-regulated learning.

This study has assessed the influence of an evaluative teaching task on the development of self-regulated learning in education professionals enrolled in an evaluation course in the teaching-learning process as part of the Master's Degree in Didactics offered by the University of Artemisa. It has been assumed that evaluation plays a determining role in the development of self-regulated learning; but to do so, it must be based on authentic tasks, in which evaluation for learning predominates over evaluation of learning, since in this way it implies self-regulation in its demands and necessarily converts the evaluative task into a situation of self-regulated learning. On the other hand, the processes of co-evaluation and self-evaluation must be inherent to all teaching tasks to increase their contribution to this type of learning.

The results show that the initiative presented can be a way of professional development for teachers, which directly contributes to increasing their knowledge and self-regulation skills, allowing them to constantly prepare themselves as education professionals, which should lead to their students learning to learn throughout life; but it is insufficient for the optimal preparation of teachers in this field, so it is necessary to give it continuity through other professional development programs such as the design of intensive workshops in which participants directly apply the knowledge and skills acquired in this course to the preparation of classes in their respective subjects.

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Conflict of interest

Authors declare no conflict of interests.

Authors' contribution

The authors participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.