ISSN. 1815-7696 RNPS 2057 -- MENDIVE Vol. 22 No. 3 (July-September)

Senra Pérez, N. C.; López Rodríguez del Rey, M. M.; Sebastiani Elías, Y. F.; Ríos Rodríguez, M. "Transformation of educational practices for the metacognitive stimulation of the university student". e3884.

https://mendive.upr.edu.cu/index.php/MendiveUPR/article/view/3884

2024

MENDIVE
REVISTA DE EDUCACIÓN

[2]National University "Pedro Ruiz Gallo". Perú.
ysebastiani@unprg.edu.pe; mriosr@unprg.edu.pe

Received: May 30, 2024
Accepted: June 22, 2024

Original article

Transformation of educational practices for the metacognitive stimulation of the university student

Transformación de las prácticas educativas para la estimulación metacognitiva del estudiante universitario

Transformação das práticas educativas para a estimulação metacognitiva do estudante universitário

Nielvis de la Caridad Senra Pérez[1]
https://orcid.org/0000-0001-5617-2766
María Magdalena López Rodríguez del Rey[1]
https://orcid.org/0000-0002-3425-4792
Yvonne de Fátima Sebastiani Elías[2]
https://orcid.org/0000-0003-1971-4807
Martha Ríos Rodríguez[2]
https://orcid.org/0000-0002-7122-5915

[1]University of Cienfuegos "Carlos Rafael Rodríguez". Cienfuegos, Cuba.
nsenra@ucf.edu.cu; mmrodriguez@ucf.edu.cu

ABSTRACT

Metacognitive stimulation is an effective way to transform educational practices and to promote the comprehensive training of university students. By encouraging reflection, self-regulation and self-knowledge, students are empowered in their learning and personal development process. The objective of this research was to substantiate the actions to be carried out by the year group to stimulate the metacognition of university students, while, at the same time, proposing a psych pedagogical conception to guide the year groups in this process. Using a qualitative methodology, based on a grounded theory approach, a sample of teachers and counselors were interviewed in the local context, followed by theoretical sampling of external specialists, experts and counselors. Finally, the data were processed using the ATLAS.ti software and the main findings were contrasted through document analysis. The results highlight the importance of coordinated action by year groups to model metacognitive diagnosis and to establish educational strategies that incorporate metacognitive stimulation in all training activities. The logical and theoretical coherence of the proposal is emphasized, underlining the need for adequate methodological work and adaptation to the characteristics of professional training for its practical implementation. The relevance of transforming educational practices through metacognitive stimulation to enhance the comprehensive development of university students is highlighted.

Keywords: cognition; higher education; college student; learning process.

RESUMEN

La estimulación metacognitiva es una vía efectiva para transformar las prácticas educativas y promover la formación integral de los estudiantes universitarios. Al fomentar la reflexión, la autorregulación y el autoconocimiento, se empodera a los estudiantes en su proceso de aprendizaje y desarrollo personal. La presente investigación tuvo como objetivo fundamentar las acciones a realizar por el colectivo de año para estimular la metacognición de los estudiantes universitarios, a la vez que se propone una concepción psicopedagógica para guiar a los colectivos de año en este proceso. Mediante una metodología cualitativa, basada en un enfoque de teoría fundamentada, se entrevistó a una muestra de profesores y orientadores en el contexto local, para luego dar paso al muestreo teórico de especialistas, expertos y orientadores externos. Finalmente, los datos fueron procesados mediante el software ATLAS.ti y los principales hallazgos se contrastaron mediante el análisis de documentos. Los resultados destacan la importancia de la acción coordinada de los colectivos de año para modelar el diagnóstico metacognitivo y establecer estrategias educativas que incorporen la estimulación metacognitiva en todas las actividades formativas. Se enfatiza la coherencia lógica y teórica de la propuesta, subrayando la necesidad de un trabajo metodológico adecuado y la adaptación a las características de la formación profesional para su implementación práctica. Se resalta la relevancia de transformar las prácticas educativas a través de la estimulación metacognitiva para potenciar el desarrollo integral de los estudiantes universitarios.

Palabras clave: cognición; enseñanza superior; estudiante universitario; proceso de aprendizaje.

RESUMO

A estimulação metacognitiva é uma forma eficaz de transformar as práticas educativas e promover a formação integral dos estudantes universitários. Ao incentivar a reflexão, a autorregulação e o autoconhecimento, os alunos são capacitados no seu processo de aprendizagem e desenvolvimento pessoal. O objetivo desta pesquisa foi fundamentar as ações a serem realizadas pela turma para estimular a metacognição dos estudantes universitários, ao mesmo tempo em que propõe uma concepção psicopedagógica para orientar as turmas nesse processo. Utilizando uma metodologia qualitativa, baseada numa abordagem de teoria fundamentada, foi entrevistada uma amostra de professores e conselheiros no contexto local, seguida de uma amostragem teórica de especialistas externos, especialistas e conselheiros. Os resultados destacam a importância da ação coordenada por grupos de anos para modelar o diagnóstico metacognitivo e estabelecer estratégias educacionais que incorporem a estimulação metacognitiva em todas as atividades de formação. Enfatiza-se a coerência lógica e teórica da proposta, sublinhando a necessidade de um trabalho metodológico adequado e de adaptação às características da formação profissional para a sua implementação prática. Destaca-se a relevância de transformar as práticas educativas por meio da estimulação metacognitiva para potencializar o desenvolvimento integral dos estudantes universitários.

Palavras-chave: cognição; ensino superior; estudante universitário; processo de aprendizagem.

INTRODUCTION

The transformation of educational practices in order to promote metacognition in university students is a topic of great importance. Cuba's educational system is based on the idea that decisions in the training process must be in line with the needs and potential of human development throughout life (Pérez Egües *et al.,* 2023; Pérez Gamboa, 2022).

In the field of university pedagogy, it is recognized that students entering university are in a transition stage between adolescence and youth, which translates into a low level of self-criticism and ineffective behavioral regulation. To a certain extent, this will depend on the individual maturity achieved by each student, despite the regularities that generally characterize the development at this stage and young people´s performance (Barrera León *et al.,* 2024).

However, during the youth stage, students are expected to develop self-awareness, to overcome difficulties in communication, to achieve independence and autonomy, to establish interpersonal relationships, to integrate and to systematize knowledge, skills and values. All of this will be put to the test when they face the social tasks that are presented to them during their time at university (Pérez Gamba, 2023; Rodríguez Torres *et al.,* 2024).

These characteristics contrast with the educational tasks that are typical of this age group. These are related to study, school and extracurricular activities, the development of abilities and skills, as well as professional choice and preparation. On the other hand, they also interact with attitudes and activities related to oneself and life orientation, as well as attitude and behavior towards others and groups (Hayat *et al.,* 2020; Loksa *et al.,* 2022).

In the youth stage, these educational tasks are summarized in research, reflection, assessment of situations and experiences, as well as participation. However, students often face difficulties in identifying what they have learned and transferring that knowledge to different performance contexts (Mamede *et al.,* 2019; Pérez Gamboa, 2022).

This situation has been observed since previous stages of teaching. Furthermore, it is common that, upon entering university, deficiencies are identified in university students to carry out critical analyzes from a metacognitive perspective in relation to their learning and ways of acting (Rodríguez Torres *et al.,* 2024; Stanton *et al..,* 2021).

During these years, the questions they ask themselves about how, why, what for, and when to learn and behave in a certain way are insufficient. This entails negative behavioral manifestations, in the personal, professional and citizen spheres (Hayat *et al.,* 2020; Lianguzova, 2021; Pérez Gamba, 2023; Rodríguez Torres *et al.,* 2024).

To address this problem, the objective of this article is to set the foundations of the actions to be carried out by the year group to stimulate university students' metacognition through academic, work, research and extension activities. This proposal has a methodological projection aimed at guiding year groups in metacognitive stimulation. This type of initiatives is essential to achieve the formation of a proactive, autonomous, committed and collaborative personality. Likewise, addressing this challenge complements the university's mission of promoting the comprehensive and continuous training of competent and committed professionals in order to promote the sustainable socioeconomic development of the territory.

MATERIALS AND METHODS

Design

The study employed a qualitative approach based on a grounded theory design to investigate the transformation of educational practices and metacognitive stimulation in the university context. The grounded theory method focused on generating theory from the data collected, rather than applying pre-existing theories. This decision was based on the method's ability to reveal new knowledge and understanding about the phenomenon investigated from the data; in this case, the transformation of educational practices and metacognitive stimulation in the university context.

The study was developed throughout 2023 as part of the doctoral training of the first author and went through three fundamental stages that allowed a substantial approach to the phenomenon studied (Figure 1). At first, students, teachers and counselors were interviewed in the local context, and then gave way to the theoretical sampling of specialists, experts and external counselors.

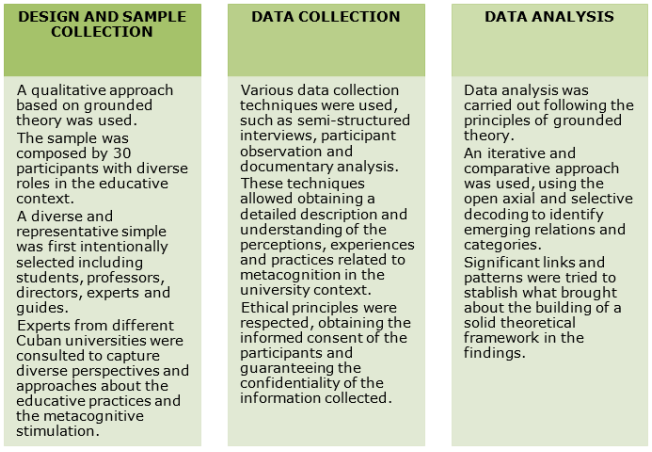

Fig. 1- Stages of the research process

Techniques and instruments

In accordance with the emerging approach of grounded theory in its constructivist variant, the semi-structured interview was used as the main way to collect data; These interviews were transcribed and the texts were entered into the ATLAS.ti software. In addition, participant observation in the context (authors 1 and 2) and document analysis (authors 3 and 4) were used. In this way, the findings obtained through the three data sources were triangulated based on the perspectives of the researchers and similarities-differences, as indicated in the literature on this method.

In order to normalize the analysis, the three techniques were implemented based on a single system of indicators, observation being a technique applied longitudinally, which data were recorded through field notes. Firstly, the following were explored: the conception of metacognition (indicator 1), particularly in relation to university students (indicator 2); the foundations of its stimulation (indicator 3); the role of educational agents (indicator 4) and the structure of the process within the framework of the university training process (indicator 5). Subsequently, these indicators were used and mainstream scientific articles related to the topic and other documents such as course syllabi, guidelines and minutes of methodological meetings, as well as the main author's own field diary, were analyzed.

Sample

The sample was intentional and was made up of 30 participants who played various roles in the educational field, including students, teachers, managers, experts and counselors. The purpose of this sampling strategy was to achieve the greatest possible dispersion in terms of perspectives, in order to achieve the representativeness required by this method and was supported by a system of inclusion-exclusion criteria (Table 1).

Table 1- Inclusion-exclusion criteria system

Key participants	Inclusion criteria	Exclusion criteria
Students	Signing of informed consent and willingness to participate. Member of the groups studied by author 1 as part of her doctoral training. Responsiveness, socio-psychological maturity and positive academic results (4.5 or higher on average).	No provision. Abandonment or departure from the study. Non-compliance with any of the indicators of criterion 3.
Teachers and directors	Signing of informed consent and willingness to participate. Experience in initiatives related to the study of metacognition.	No provision. Abandonment or departure from the study.
Experts	Specialist in Higher Education, the Educational Guidance discipline, the operation of psycho-pedagogical offices or wellness centers. At least five years of verifiable experience. At least two publications in serial magazines related to the topic.	No provision. Abandonment or departure from the study.

All the selected students belonged to the "Carlos Rafael Rodríguez" University of Cienfuegos (n= 12). Additionally, the criteria of professors (n=6), directors (n=2), experts and counselors from three Cuban universities (n= 10) were consulted: the "Carlos Rafael Rodríguez" University of Cienfuegos (n=5), the "Marta Abreu" Central University of Las Villas (n=3) and the University of Camagüey (n=2). These institutions were selected due to their relevance in the Cuban educational context, as well as to capture different perspectives and approaches in relation to educational practices and metacognitive stimulation.

Analysis of data

The data analysis was carried out based on the precepts of the grounded theory method in its emergent and constructivist variant, so that through the interviews ideas and observations were presented to the participants, which facilitated the co-construction of the codes and analysis categories. The coding process was carried out by labeling free-form text fragments, while axial coding was carried out based on the authors' discussion, corroboration of the perceived relationship between codes and the grouping of these into the main topics.

Once this process was completed, key articles were identified in the literature on the topic and were analyzed based on the previously pointed out indicators. These findings were compared with those obtained in the analysis of the transcripts and subjected to a bipartite assessment of observation and document analysis. In this way, authors 1 and 2 offered their considerations and authors 3 and 4 were in charge of verifying them.

Ethical considerations

In accordance with the principles of ethics in qualitative research, all participants were correctly informed of the objectives of the study, their rights, especially the right to abandon the study. Additionally, measures were established

to guarantee the security and anonymity of each participant; The interviews were carried out individually. Finally, under the bases of this agreement, each participant granted informed consent.

RESULTS

The psychopedagogical conception presented is based on historical-cultural theory, which places the individual at the center of the educational process and highlights his active role and interactions. Furthermore, it emphasizes the importance of activity and communication in the formation of consciousness. This perspective allows us to understand metacognitive stimulation as a continuous and conscious influence exerted by teachers of the year group. In this way, psychological processes such as reflection, understanding, the ability to anticipate, tolerance and acceptance are activated, through the perception of emotions and feelings.

The stimulation generated in the activity and the communication promoted by the teacher are supported by actions and resources that guide the intervention of those involved in the actions that define the educational strategy. These actions act as stimuli for the development of psychological formations, such as: self-assessment, self-knowledge and self-regulation. These skills will allow students to make decisions and to develop coherent life projects, oriented towards their personal, professional and social development.

In accordance with this position, this section summarizes the conditions that the teacher must meet as a mediator in this process. These conditions were identified from the content analysis of the literature addressed. Subsequently, semantic codes were identified that served as a basis to found a unifying theory of the role of metacognitive stimulation in the university student. Figure 2 shows the main units of analysis identified; These, in turn, constituted the thematic content units of the research.

Fig. 2- Units of analysis for a unifying theory of the role of metacognitive stimulation in the university student
Source: Prepared by the authors using the ATLAS.ti software

Metacognitive stimulation as a dynamic element for the integral development of personality

Metacognitive stimulation is presented as a fundamental dynamic element for the comprehensive development of personality. In this approach, teachers play a guiding role that incites, motivates and makes students aware of their current identity and future aspirations. The aim is to have the students reflecting on who they are and who they want to be, taking into account their resources and potential to achieve their personal development goals at the present moment.

In this context, the importance of carrying out a diagnosis that allows identifying the individual strengths and potentials of each student is highlighted. These characteristics are highlighted as valuable resources that can help overcome possible shortcomings or limitations. Additionally, the necessary supports must be identified and provided to promote the student's growth and development.

Communication plays a central role in this process. The aim is to promote assertive, empathetic and self-reflective communication, which allows highlighting potential as strengths and, at the same time, identifying the opportunities available for growth and development. It is essential to constantly invite students to carry out a self-analysis and assessment of their knowledge, skills and attitudes, since this will guarantee their success when facing academic and socio-professional challenges.

In addition, the exchange of experiences is promoted in which explicit or implicit alternatives are proposed to overcome obstacles. The crucial role of emotions is recognized as a driving force that drives students to action. Teachers must accompany students in making decisions related to their participation in training activities, providing them with guidance, support and reinforcement of the achievements obtained.

The educational approach must be adjusted in a personalized way, so that each student can appropriate a learning method that allows them to actively participate in the activities, both for their responsibilities as a student and for their personal interest. It is essential to create spaces for reflection, interaction, evaluation and socialization of alternatives, in order to promote self-transformation and the identification of the necessary means to achieve comprehensive personality development.

It is essential that the student is the protagonist in all activities and that his or her needs for cognitive and affective feedback are satisfied. This is achieved through the assessment of the results and the interpretation of the resources that are presented as fundamental pillars for its growth. In summary, the aim is to empower the student in their own learning process, providing them with the necessary support for their comprehensive development.

Multidimensional, gradual and integrative nature of metacognitive stimulation

Metacognitive stimulation stands out for its multidimensional, gradual and integrative nature, covering personal, professional and citizen aspects, and promoting convergence between socialization and individualization. Graduality implies that influences occur, both individually to groups and from groups to individuals. On the other hand, integration refers to the fact that the content of the activities stimulates the cognitive, affective and attitudinal aspects, and it is present in all academic, research, work and extension areas, both inside and outside the institution.

In this context, teachers play an essential role and must carry out various actions. Firstly, they must foster the interpersonal dimension of the relationships established in training activities, promoting an exchange based on respect and recognition of diversity. The importance of valuing how each individual can contribute to the achievement of personal and group objectives is highlighted, and the aim is to promote the inclusion and strengthening of others.

Secondly, teachers must give relevance to the sociocultural and professional nature of the contents, methods and resources used in training. It is essential that they are aware of how each participant leaves a mark, whether positive or negative, that can serve as a model for their personal and socio-professional projection.

Finally, teachers must facilitate the construction and reconstruction of meanings and senses through the spaces of interaction that arise from the relationships established in the activities, communication and systematization of learning at different moments of the exchange.

Likewise, students also play an effective role in this process. They must actively participate in the systematization and reflection of their communicative experiences and the learning

generated during their training. Additionally, it is important that they become aware of the learning that they include in their personal and socio-professional projection configuration. All of this contributes to the benefit of the group and allows them to respond to the development opportunities that have been offered to them, generating continuity commitments and replicating the models that have been implemented in their educational practices.

Coherence of educational influence in metacognitive stimulation activities

Coherence plays a fundamental role in the educational influence of metacognitive stimulation activities to ensure their effectiveness. These activities must be designed in a coherent manner, selecting and applying stimuli that configure formative influences, both in the curricular and extracurricular spheres. It is essential to adopt a problematic, practical and investigative approach in these activities.

In this sense, the importance of the first moment of each activity is recognized, which aims to awaken the need in students to explore their own knowledge, how they plan to approach it, with whom and when (self-knowledge). From this analysis, students can make decisions based on self-regulation.

In a second moment, it seeks to promote influences that encourage the internalization of emotional experiences and feelings, thus expanding the meaning and the sense of the information and providing a solid basis for decision making. This internalization is expressed again in successful performance. The planning of activities, which includes intentional influences, is carried out through informative and reflective provocation to internalize the self-knowledge process.

During the third moment of the activity, which coincides with the execution of the tasks, it is essential that students monitor their emotions, perspectives, setbacks and progress. These elements are not limited to being discussed, but become stimuli that drive students to identify personal possibilities that contribute to the growth of the group. This lays the foundation for proactive, entrepreneurial and collaborative action.

At the closing moment of the activity, the fourth moment, it is the teacher's responsibility to ensure that the stimuli used, such as reflection, reconstruction of the experience and the assessment of objective and subjective results, allow fluid transition between interpsychological action and intrapsychological action, both at the individual and group level. This encourages students to identify their growth in the areas of personal, professional and civic training, as presented in the context of the degree.

In order to achieve this moment, teachers must conceive the educational activity as a continuous opportunity to stimulate metacognition in students. They must use resources that guide self-knowledge, self-assessment, assessment of the context and recognition of opportunities, as well as that promote active participation in the search for the group's potential in the training process. In addition, it is important that the focus and importance of the influences and stimulation resources that will be used be agreed upon in the year group meetings.

Finally, it was found that it is possible to transform educational practices for the metacognitive stimulation of university students. According to the participants and the results obtained in the application of the method, this can be achieved through a coherent process of influences, which multidimensionally addresses the training reality and which is operationalized based on comprehensive development (figure 3).

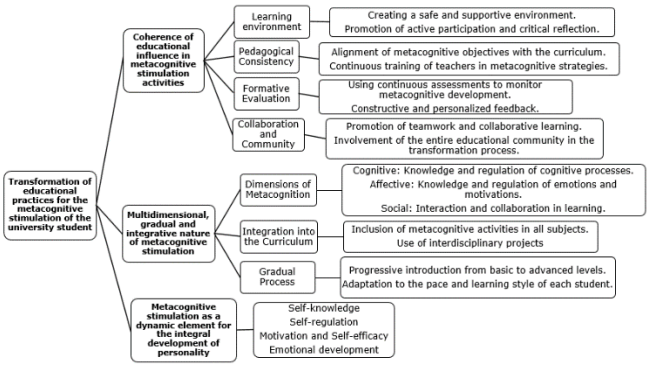

Fig. 3- Representation of the data structure and main themes

DISCUSSION

The application of the grounded theory method allowed us to identify three fundamental themes. These were represented through the free codes identified by the authors and in a final matrix that illustrates the structure of the data until reaching the foundation of the central purpose (Bally *et al.,* 2023; Božiè *et al.,* 2020).

students face metacognitive challenges related to the lack of stimulating activities in various aspects of their personal, academic and social development. In addition, limitations have been identified in students' perception of their self-knowledge and personal autonomy, as well as difficulties in planning, selection of strategies, time management, and organization of information (Stanton *et al.,* 2021).

From the above, the importance of the teachers´ role in stimulating the metacognition of university students is recognized. Likewise, the lack of specific proposals to guide teachers in this process during their initial training is noted (Guo, 2020).

In the Cuban context, the need to consider the diagnosis and organization of stimuli that promote the development of the participants stands out. Metacognitive stimulation is considered both implicit, through influences mediated by teachers that promote self-knowledge and self-regulation, and explicit, through the expression of achievements and the determination of aid (Pérez Egües *et al.,* 2023; Pérez Gamboa, 2022).

These results complement and expand the understanding of metacognitive stimulation as a dynamic element of the comprehensive development of personality. The importance of reflection, communication, active participation and the systematization of learning in the process of metacognitive stimulation is highlighted. (Hey *et al.,* 2020; Lianguzova, 2021; Zaretsky & Kholmogorova, 2020).

Therefore, the primary need to carry out a diagnosis to identify the individual strengths and potentials of each student arises, which will allow providing the necessary help to promote their growth and development. Likewise, the proposal presented highlights the importance of assertive, empathetic and self-reflective communication, which promotes the assessment of students' knowledge, skills and attitudes (Mamede *et al.,* 2019).

Furthermore, the study emphasizes the crucial role of emotions in metacognitive stimulation, as they act as an engine that drives students to action. Teachers must accompany students in making decisions related to their participation in training activities, providing them with guidance, support and recognition of their achievements (Hayat *et al.,* 2020).

Therefore, metacognitive stimulation is presented as a multidimensional, gradual and integrative process, which encompasses personal, professional and citizen aspects. Teachers play an essential role in promoting the interpersonal, sociocultural and professional dimension of training activities. This is why, it is necessary to create spaces for reflection, interaction, evaluation and socialization of alternatives to promote self-transformation and

the integral development of personality (Loksa *et al.,* 2022).

Metacognitive stimulation is highlighted as an effective way to transform educational practices, by promoting reflection, self-regulation and self-knowledge in students. The proposal of a psychopedagogical conception for metacognitive stimulation during initial training is revealed as a key element to achieve competent and committed training of future professionals. Likewise, the importance of coordinated action by year groups in the implementation of metacognitive stimulation strategies in all training activities is emphasized. These results underline the importance of metacognitive stimulation as a dynamic element of the comprehensive development of personality. In addition, they highlight the need to make a diagnosis, to promote communication, to encourage active participation and to guarantee coherence in metacognitive stimulation activities. These findings have significant implications for educational practice as they highlight the importance of empowering students in their own learning and development process.

BIBLIOGRAPHIC REFERENCES

Bally, J. M. G., Bullin, C., Oswal, J., Norbye, B., & Stavøstrand Neuls, E. (2023). "Balancing two worlds": a constructivist grounded theory exploring distributed/decentralised nursing education in rural and remote areas in Canada and Norway. *International journal of circumpolar health*, *82*(1), 2281100. https://doi.org/10.1080/22423982.2023.2281100

Barrera León, D., Tello Flores, R. Y., Ramos Guzmán, F., & Pérez Gamboa, A. J. (2024). Acompañamiento a la promoción de proyectos de vida de jóvenes seropositivos. Un estudio cualitativo complejo. *Región Científica*, *3*(1), 2024248. https://doi.org/10.58763/rc2024248

Božiè, B., Siebert, S., & Martin, G. (2020). A grounded theory study of factors and conditions associated with customer trust recovery in a retailer. *Journal of Business Research, 109*, 440-448. https://doi.org/10.1016/j.jbusres.2019.12.032

Guo, L. (2020). Teachers' mediation in students' development of cognition and metacognition. *Asia-Pacific Journal of Teacher Education*, 50, 458-473. https://doi.org/10.1080/1359866X.2020.1846158

Hayat, A., Shateri, K., Amini, M., & Shokrpour, N. (2020). Relationships between academic self-efficacy, learning-related emotions, and metacognitive learning strategies with academic performance in medical students: a structural equation model. *BMC Medical Education*, 20(76). https://doi.org/10.1186/s12909-020-01995-9

Heyes, C., Bang, D., Shea, N., Frith, C., & Fleming, S. (2020). Knowing Ourselves Together: The Cultural Origins of Metacognition. *Trends in Cognitive Sciences*, 24, 349-362. https://doi.org/10.1016/j.tics.2020.02.007

Lianguzova, V. (2021). Personality and features of metacognition and perception of everyday life. *European Psychiatry*, 64, S442. https://doi.org/10.1192/j.eurpsy.2021.1180

Loksa, D., Margulieux, L., Becker, B., Craig, M., Denny, P., Pettit, R., & Prather, J. (2022). Metacognition and Self-

Regulation in Programming Education: Theories and Exemplars of Use. *ACM Transactions on Computing Education (TOCE)*, 22, 1-31. https://doi.org/10.1145/3487050

Mamede, S., Figueiredo-Soares, T., Santos, S., Faria, R., Schmidt, H., & Gog, T. (2019). Fostering novice students' diagnostic ability: the value of guiding deliberate reflection. *Medical Education*, 53, 628-637. https://doi.org/10.1111/medu.13829

Pérez Egües, M. A., Torres Zerquera, L. del C., & Hernández Delgado, M. (2023). Evaluación de las condiciones del Gabinete Psicopedagógico de la Universidad de Cienfuegos en la gestión de servicios de orientación virtual. *Región Científica*, *2*(2), 202-384. https://doi.org/10.58763/rc202384

Pérez Gamboa, A. J. (2022). La orientación educativa universitaria en Cuba: situación actual en la formación no pedagógica. *Conrado*, *18*(89), 75-86. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1990-86442022000600075&lng=es&tlng=en

Pérez Gamboa, A. J., García Acevedo, Y., García Batán, J. & Raga Aguilar, L. M. (2023). La configuración de proyectos de vida desarrolladores: Un programa para su atención psicopedagógica. *Actualidades Investigativas en Educación*, *23*(1), 398-431. https://dx.doi.org/10.15517/aie.v23i1.50678

Rodríguez Torres, E., Dávila Cisneros, J., & Gómez Cano, C. (2024). La formación para la configuración de proyectos de vida: una experiencia mediante situaciones de enseñanza-aprendizaje. *Varona*, (79). http://scielo.sld.cu/scielo.php?pid=S1992-82382024000100007&script=sci_abstract

Stanton, J., Sebesta, A., & Dunlosky, J. (2021). Fostering Metacognition to Support Student Learning and Performance. *CBE Life Sciences Education*, 20 (2). https://doi.org/10.1187/cbe.20-12-0289

Zaretsky, V., & Kholmogorova, A. (2020). Relationship between Education, Development & Health from Cultural-Historical Perspective. *Cultural-Historical Psychology*, 16, 89-106. https://doi.org/10.17759/CHP.2020160211

Conflict of interests:

The authors declare not to have any interest conflicts.

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.

Cite as

Senra Pérez, N. C., López Rodríguez del Rey, M. M., Sebastiani Elías, Y. F., Ríos Rodríguez, M. (2024). Transformation of educational practices for the metacognitive stimulation of the university student. *Mendive. Journal on Education*, *22*(3), e3884. https://mendive.upr.edu.cu/index.php/MendiveUPR/article/view/3884