Systematic review of authentic assessment strategies in competency-based training

Revisión sistemática de estrategias de evaluación auténtica en la formación por competencias

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Abstract

This study analyzes the effectiveness of authentic assessment strategies in measuring competencies through tangible evidence. From a qualitative methodological approach, a systematic review of high-impact scientific literature was carried out, in English and Spanish, published between 2000 and 2024, based on sources extracted from specialized databases. The PRISMA method was used for the analysis, which allowed the rigorous selection of 23 relevant scientific articles after the purification phase. The results identify strategies that articulate the competencies of the graduate profile with units of competence, disaggregated into learning standards, achieved through specific performances during the training process. These performances are assessed through concrete products, evaluated with authentic instruments such as rubrics, portfolios, assessment scales and standardized tests such as Saber. It is concluded that the systematic implementation of authentic assessment strategies, based on planning, execution and reflective analysis, favors an objective, relevant formative assessment aligned with the comprehensive development of competencies in higher education.

Keywords: authentic assessment, competencies, higher education.

Resumen

El presente estudio analiza la eficacia de las estrategias de evaluación auténtica en la medición de competencias a través de evidencias tangibles. Desde un enfoque metodológico cualitativo, se llevó a cabo una revisión sistemática de literatura científica de alto impacto, en inglés y español, publicada entre los años 2000 y 2024, a partir de fuentes extraídas de bases de datos especializadas. Para el análisis se utilizó el método PRISMA, lo que permitió la selección rigurosa de 23 artículos científicos relevantes tras la fase de depuración. Los resultados identifican estrategias que articulan las competencias del perfil de egreso con unidades de competencia, desagregadas en estándares de aprendizaje, alcanzados mediante desempeños específicos durante el proceso formativo. Estos desempeños son valorados mediante productos concretos, evaluados con instrumentos auténticos como rúbricas, portafolios, escalas de valoración y pruebas estandarizadas tipo Saber. Se concluye que la implementación sistemática de estrategias de evaluación auténtica, basada en la planificación, ejecución y análisis reflexivo, favorece una evaluación formativa objetiva, pertinente y alineada con el desarrollo integral de competencias en la educación superior.

Palabras clave: evaluación auténtica, competencias, educación superior.

Introduction

Currently, competency-based training represents a widely adopted model that addresses the challenges of a globalized society focused on practical knowledge. While planning tools and teaching strategies have successfully consolidated and disseminated, significant limitations persist regarding learning assessment strategies. One of the primary difficulties is the assessment of competencies, which are often defined in general or abstract terms, hindering their operationalization in observable and measurable ways. Additionally, there is a noticeable lack of objectivity in formulating learning standards, especially when evaluating soft skills such as communication, teamwork, or problem-solving, which are not always assessed with precise and relevant criteria (Aravena & Gairín, 2021). This situation illustrates that, although many educators apply the competency-based formative approach, assessment continues to focus primarily on theoretical knowledge. All of this reflects a resistance to the paradigm shift that involves transitioning from measurement-centered evaluation to formative and authentic assessment (UNESCO, 2022).

To overcome these deficiencies, it is essential to implement competency-based assessment strategies. Various training workshops have shown that many university educators struggle to plan differentiated assessments according to the level of competence. In other words, they fail to clearly distinguish between exit profile competencies, units of competence, and the expected learning standards at each educational stage. This lack of articulation prevents establishing a coherent relationship between the achieved learning outcomes and the competencies outlined in the exit profile. In this context, it becomes necessary for universities to promote the construction of competency maps, which allow for the gradual breakdown and explicit clarification of general competencies down to their most operational level, represented by mastery levels (Tobón et al., 2010).

Moreover, a pronounced resistance to change has been identified among educators who, despite having participated in professional development programs, tend to maintain traditional teaching styles focused on a cognitive assessment approach, primarily based on conceptual and rote content (Sánchez & Orozco, 2020). There is also an inappropriate use of rubrics: although their implementation has expanded, many educators confuse them with grading scales and fail to establish an adequate relationship between performances, evidence, and instruments in accordance with the evaluation standards set for each subject. In various cases, assessment is directed at the student as a subject, rather than at the products or evidence generated, leading to a focus on decontextualized content, far removed from solving real problems, as previously noted by authors such as Condemarín & Medina (2007), Díaz Barriga & Hernández (2010), Monereo et al. (2007), and Tobón (2018), among others.

Authentic assessment is proposed as a response to the transition from the cognitive paradigm to an approach centered on contextualized performances and the development of competencies, considering the student in their individuality, context, and learning styles (Vega & Fraustro, 2023). According to Díaz Barriga & Hernández (2010) and Condemarín & Medina (2007), this type of assessment is characterized by requiring students to engage in the resolution of complex, real-world tasks, applying their prior knowledge and skills to solve specific problems. In the same vein, Ahumada (2005) argues that authentic assessment is a key opportunity to enhance learning quality as an integral part of the teaching and learning process.

According to López et al. (2021), Martín & Martínez (2021), Riera et al. (2023), and Tobón (2017), authentic assessment is grounded in several key elements. Among these, the challenging nature of tasks stands out, providing greater significance by linking them to real issues and the student's progress in their educational journey (Henríquez et al., 2019). The attainment of tangible results is also valued, allowing both the educator and the student to clearly recognize the achievements made, whether through observable performances or concrete products (Navas et al., 2023). The transfer of knowledge to practice is another essential element, understood as the effective application of learning in real contexts; in this case, the evidence of learning is the performance itself (Tobón, 2017). Furthermore, metacognitive processes are incorporated to foster self-reflection and self-assessment, enabling students to identify their strengths, weaknesses, and areas for improvement (Sánchez & Orozco, 2020). Another fundamental aspect is the formative and continuous nature of authentic assessment, which ensures progressive learning through immersion in real situations where transfer and improvement processes are evident (Frade, 2009). In this sense, feedback on performance becomes relevant, guiding the improvement process throughout the entire educational journey, allowing for active participation of both educators and students in adjustment and refinement actions (Camacho-Navarro & Salinas-García, 2022). Finally, collaboration emerges as a pillar of authentic assessment, promoting cooperative work as a strategy to understand, transfer, and solve problems from different perspectives, thus fostering the integration of interdisciplinary knowledge (Lee et al., 2023).

Authentic assessment is distinguished by its eminently formative character, based on teaching activities aimed at continuous improvement. This approach allows the evidence or products developed by students to be interpreted and utilized by educators and students to make decisions regarding progress in developing competencies and to make adjustments in the educational process (Minedu Chile, 2017). Thus, assessment is integrated into the educational project and is implemented continuously in each learning session. By systematically applying assessment, the educator incorporates activities with formative and feedback purposes (Anijovich, 2017). Formative assessment, therefore, not only allows for monitoring learning but also facilitates timely feedback that strengthens the teaching and learning process. According to Tobón (2017), assessment assumes a socio-formative character when it actively engages in diagnosis, feedback, and constant support for students, helping them to solve contextual problems, improve their performance, and develop the skills demanded by the knowledge society. To achieve this, it is essential to implement participatory strategies such as self-assessment and peer assessment, which promote critical reflection and commitment to learning (Fuenzalida et al., 2024).

An authentic assessment strategy based on evidence and products (Buitrago et al., 2019) focuses on the student's ability to apply knowledge, skills, and attitudes in real contexts. Its purpose is to evaluate the practical application of learning in problem-solving, beyond theoretical mastery (Monereo, 2009). This strategy includes three phases: planning, execution, and evaluation.

The planning of assessment occurs at two levels. At the macro-curricular level, it involves designing competency maps and progressively constructing mastery levels, which allow for establishing evaluation standards for academic programs (Huerta, 2015; Pimienta, 2008). At the micro-curricular level, learning outcomes, performance criteria, expected evidence, and appropriate instruments for assessing competencies are defined. This process requires: a) the precise and objective formulation of learning standards (Huerta, 2015); b) the identification of observable performances that demonstrate the acquisition of competencies (Tobón, 2018); and c) the application of relevant instruments that adequately assess the level of achievement (Condemarín & Medina, 2007).

Methodology

The systematic literature review was employed as the central methodology to rigorously and orderly organize the collection and analysis of information. This approach ensures the objectivity and replicability of the study, facilitates the consolidation of existing knowledge, and contributes to the foundation of new academic proposals.

The development of the review followed the four phases proposed by Codina (2018): search, evaluation, analysis, and synthesis. In the search phase, specialized databases such as Dialnet, Google Scholar, Scopus, and Web of Science were consulted. Relevant documents were located using keywords such as "assessment," "authentic assessment," "competency-based assessment," "performance-based assessment," and "formative assessment." Selection filters included publications in English and Spanish, studies published between 2000 and 2024, and original or review scientific articles, as well as specialized books. Theses, gray literature, and documents lacking formal academic validation were excluded.

During the evaluation phase, the titles and abstracts of the collected materials were reviewed to verify their relevance concerning the object of study. Inclusion criteria required that documents addressed conceptual

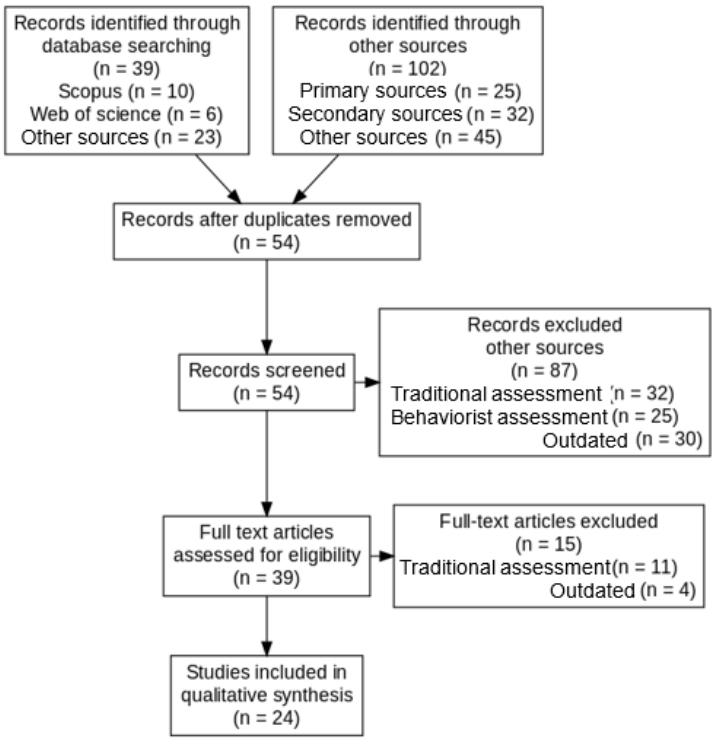
definitions related to assessment, competency-based assessment, formative assessment, and authentic assessment, as well as innovative strategies applied in university settings. Conversely, texts focused solely on traditional content-based assessment approaches, studies conducted in non-university contexts, and unpublished theses were excluded.

In the analysis phase, a thorough reading of the selected books and articles was conducted. Relevant theoretical and methodological contributions were extracted, considering the context of application, scope, strategies used, and specific findings. This critical reading allowed for the identification of the relationship between authentic assessment and competency-based assessment in the higher education context.

Finally, in the synthesis phase, the findings were systematized, thematically organized around categories such as authentic assessment, performance-based assessment, and competency-based assessment. Recurrent patterns, conceptual discrepancies, and theoretical gaps were identified. Based on this systematization, conclusions were drawn to strengthen the approach of evidence-based authentic assessment and its integration with university pedagogy.

A total of approximately 102 books and 39 scientific articles were reviewed. From this set, a final sample of 24 articles and 20 books that met the criteria for quality, relevance, and reliability was selected. Documents not sourced from reliable databases were excluded to ensure the validity and rigor of the study.

Figure 2
PRISMA diagram



Results and discussion

Based on the analysis of specialized literature, internal university regulations, and the evaluation of documented pedagogical experiences, an authentic assessment strategy was designed, structured in three phases: planning, implementation, and evaluation. This proposal articulates the principles of competency-based assessment with an evidence- and performance-based approach, adapted to the context of higher education.

In the planning phase, the identification of competencies and capabilities linked to learning standards is initiated. Units of competence define the expected achievements within an academic period, expressed as complex performances that integrate knowledge, skills, and attitudes aimed at solving real problems. Capabilities, in turn, are established as specific learning outcomes, formulated in evaluative statements that guide the expected quality of performance. Learning standards clearly delineate the object of assessment, based on the products

generated by students, allowing for the establishment of observable, measurable, and assessable criteria (Tobón, 2018; Sadler, 2017).

Subsequently, the levels of competency mastery are defined, understood as learning progressions that allow for evaluating the degree of development achieved by students. Pimienta (2012) proposes four levels: initial, basic, autonomous, and strategic. These levels guide didactic planning and enable the adaptation of teaching and assessment activities to the student's formative moment. Additionally, evidence or products are defined as tangible proof of learning, which must integrate knowledge (knowing), skills (doing), and attitudes (being) and respond to previously established criteria (Secretaría de Educación Pública, 2018).

The selection of assessment instruments constitutes a critical stage to ensure the validity and reliability of the process. Instruments such as rubrics, checklists, or rating scales allow for analyzing both the final product and the processes involved in its creation, such as analytical capacity, critical thinking, creativity, and ethical commitment (Frade, 2009). The development of these instruments requires clear alignment with learning standards, as well as technical validation through criteria of internal reliability or expert judgment, depending on the nature of the instrument.

In the implementation phase, the selected instruments are applied to assess the observable performances of students. Evidence can take multiple forms, such as oral presentations, portfolios, collaborative projects, infographics, or defenses of written work. Authentic assessment, in this sense, seeks to transform the educational experience into a contextualized situation that enables students to act, reflect, and transfer learning to real problems (Tobón, 2017; Brown, 2015). According to Vega & Fraustro (2023), this modality can be diagnostic, formative, or summative, depending on when it is applied within the pedagogical process.

The evaluation and decision-making stage involves analyzing the results obtained from the application of the instruments. This analysis not only entails assigning a grade but also identifying strengths, weaknesses, and learning gaps. The information obtained should serve as input for providing meaningful, useful, and timely feedback that guides the continuous improvement of the educational process. Feedback, according to Hernández Jaime et al. (2024), should enable students to recognize their achievements and challenges, and allow educators to adjust their pedagogical practices to the real needs of the group.

In this same logic, the implementation of strategies such as self-assessment and peer assessment is deemed essential. These techniques promote self-regulation of learning and strengthen students' critical awareness regarding their educational process (Fuenzalida et al., 2024). Moreover, by including the student's perspective in the evaluative process, a more democratic and participatory view of assessment is promoted.

The communication of results represents the closure of the evaluative cycle. This process should be conducted objectively, clearly, and based on evidence, presenting not only the numerical or qualitative grade but also the criteria supporting it, the evaluated products, and the levels of achievement attained. This communication allows for relevant pedagogical decisions, such as course approval or the need for reinforcement, and ensures the transparency of the process (Anijovich & Cappelletti, 2017).

In summary, the evidence-based authentic assessment strategy proposed in this study is structured around coherent curricular planning across macro and micro levels; contextualized implementation with validated instruments; and comprehensive evaluation culminating in constructive feedback. This strategy fosters a more pertinent, fair, and formative assessment approach aimed at developing real competencies in university students.

Conclusions

The evidence-based authentic assessment strategy is structured into three fundamental phases: planning, implementation of the evaluative process, and evaluation of results with subsequent decision-making. The planning of assessment occurs at two levels. At the macro-curricular level, the competencies of the graduation profile are aligned with the units of competency and learning standards; for this, a competency map is designed, accompanied by the respective levels of mastery. At the micro-curricular level, planning is concretized in the syllabus through the coherent integration of learning standards, expected performances, evidence or products, and evaluation instruments, corresponding to the competencies and skills outlined in the educational program.

In the application phase of the instruments, an ad hoc tool is selected or constructed based on the type of evidence or product to be assessed. Subsequently, these instruments are applied in real or simulated problematic contexts, where students must demonstrate their learning through observable performances. To evaluate results, it is essential to define the most appropriate grading scale, whether qualitative or quantitative. Based on this assessment, feedback is provided on the formative process, identifying gaps between expected learning outcomes and those actually achieved. This stage allows for adjustments in teaching according to detected needs, thereby promoting continuous improvement.

Finally, informed decisions are made based on the obtained results: to pass, fail, or readjust the formative process. This information must be communicated in a timely, clear, and transparent manner to the student and, if necessary, to their family, specifying both the achievements reached and the deficiencies identified concerning the expected learning outcomes. It is important to express achievements in terms of the levels of mastery of the competencies, in accordance with the internal standards of the educational system. Following this process, certification of the achieved results is carried out.

In summary, the evidence-based authentic assessment strategy emerges as a relevant, efficient, and effective approach for evaluating the development of competencies in the educational sphere, coherently articulating planning, evaluative action, and the continuous improvement of learning.

References

Ahumada, P. (2005). *Hacia una evaluación auténtica del aprendizaje*. Editorial Paidós Mexicana, S.A.

Amancio, P., Montañez, A., Villa, R., & Dolorier, R. (2021). Evaluación auténtica para mejorar la comprensión de textos orales en la primera infancia. *Horizonte de La Ciencia*, *11*(21). https://doi.org/10.26490/uncp.horizonteciencia.2021.21.905

Anijovich, R. (2017). La evaluación formativa en la educación superior. *Voces de la Educación*, *2*(6), 31–36. https://dialnet.unirioja.es/servlet/articulo?codigo=6475459

Anijovich, R., & Cappelletti, G. (2017). *La evaluación como oportunidad*.

Aravena, M., & Gairín, J. (2021). Evaluación del desempeño docente: Una mirada desde las agencias certificadoras. *Profesorado, Revista de Currículum y Formación del Profesorado*, *25*(1). https://doi.org/10.30827/profesorado.v25i1.8302

Brown, S. (2015). La evaluación auténtica: el uso de la evaluación para ayudar a los estudiantes a aprender. *RELIEVE - Revista Electrónica de Investigación y Evaluación Educativa*, *21*(2). https://doi.org/10.7203/relieve.21.2.7674

Buitrago, M., Cabezas, M., Castillo, J., Moyano, A., & Pinzón, M. (2019). Evaluación auténtica: un camino hacia la transformación de las prácticas pedagógicas. *Revista Educación y Desarrollo Social*, *12*(1). https://doi.org/10.18359/reds.3359

Camacho-Navarro, A., & Salinas-García, R. J. (2022). Estrategia basada en la evaluación auténtica para el desarrollo de competencias digitales en la formación inicial docente. *RIDE Revista Iberoamericana para la Investigación y el Desarrollo Educativo*, *12*(24). https://doi.org/10.23913/ride.v12i24.1126

Codina, L. (2018). *Revisiones bibliográficas sistematizadas: procedimientos generales y Framework para Ciencias Humanas y Sociales*. Universitat Pompeu Fabra. https://repositori.upf.edu/items/224872e9-6f79-4666-8ad9-07aad198aa97

Condemarín, M., & Medina, A. (2007). *Evaluación de los aprendizajes*. Editorial Andres Bello.

Díaz Barriga, F., & Hernández, G. (2010). *Estrategias docentes para un aprendizaje significativo: Una interpretación constructivista* (3ª ed). McGraw-Hill Interamericana.

Frade, L. (2009). *La evaluación por competencias* (3ª ed). Inteligencia Educativa.

Fuenzalida Valdebenito, C., Cisternas León, T., Alarcón Muñoz, P., Giscard Sánchez, P., & Romero Pérez, J. (2024). Estrategias de evaluación auténtica en contextos virtuales y presenciales de educación superior. Una experiencia en formación inicial docente. *Revista Digital de Investigación en Docencia Universitaria*, *18*(1), e1811. https://doi.org/10.19083/ridu.2024.1811

Henriques, S., Chaves, L., Brito, L., Mello, A., da Silva, B., & Leal, L. (2019). Transcultural Adaptation of the Competency Evaluation Questionnaire-Brazilian version. *Revista Gaucha de Enfermagem*, *40*. https://doi.org/10.1590/1983-1447.2019.20180155

Hernández Jaime, J., Jiménez Galán, Y. I., & Rodríguez Flores, E. (2024). Retroalimentación entre pares: experiencia en el aula. *RIDE Revista Iberoamericana para la Investigación y el Desarrollo Educativo*, *15*(29). https://doi.org/10.23913/ride.v15i29.2108

Huerta, M. (2015). *La estrategia en el aprendizaje: Una guía básica para profesores y estudiantes*. Editorial Magisterio.

Huerta Rosales, M. (2015). *Formación por competencias a través del aprendizaje estratégico, 2*(1), 57-67 https://doi.org/10.36955/RIULCB.2015v2n1.005

Huerta, M. (2018). Evaluación basada en evidencias, un nuevo enfoque de evaluación por competencias. *Revista de Investigaciones de la Universidad Le Cordon Bleu*, *5*(1), 159–171. https://doi.org/10.36955/RIULCB.2018v5n1.0011

Lee, S. E., Ju, N., & Lee, K. H. (2023). Service chatbot: Co-citation and big data analysis toward a review and research agenda. *Technological Forecasting and Social Change*, *194*. https://doi.org/10.1016/j.techfore.2023.122722

Lopez, J., López, R., & López, J. (2021). *Evaluar los procesos de aprendizaje. Estrategias de evaluación*. Editorial Página Seis, S.A.
Martín, E., & Martínez, F. (2021). *Avances y desafíos en la evaluación educativa*. Organización de Estados Iberoamericanos para la Educación, la Ciencia y la Cultura (OEI).
Mateo, J. (2006). *La evaluación educativa, su práctica y otras metáforas*. Alfaomega Grupo. www.atfaornega.com.mx
Minedu Chile. (2017). *Evaluación formativa en el aula, orientaciones para docentes*. Ministerio de Educación. https://hdl.handle.net/20.500.12365/17448
Monereo, C. (2009). La evaluación auténtica en enseñanza secundaria y universitaria. *Edebé, Innova Universitas*, 9–22. https://www.researchgate.net/publication/259863588_Castello_M_coord_2009_La_evaluacion_autentica_en_ensenanza_secundaria_y_universitaria_investigacion_e_innovacion_Barcelona_Edebe
Monereo, C., Castelló, M., Clariana, M., Palma, M., & Perez, M. (2007). *Estrategias de enseñanza y aprendizaje* (12 ª ed). Editorial Grao.
Navas, S., Garcés, E., Pecho, M., Guanipa, F., & Colina, F. (2023). Authentic Evaluation for the Improvement of the Argumentative Written Essay in Virtual University Environments. *Lecture Notes in Networks and Systems*, *619 LNNS*. https://doi.org/10.1007/978-3-031-25942-5_15
Pimienta, J. (2008). *Evaluación de los aprendizajes: Un enfoque basado en competencias*. Pearson Educación de México, S.A. www.pearsoneducacion.net
Pimienta, J. (2012). *Las competencias en la docencia universitaria*. Pearson Educación.
Riera, J., Castillo, M., Campoverde, M., & Uyaguari, S. (2023). La evaluación de los aprendizajes desde el enfoque por competencias. *Ciencia Latina Revista Científica Multidisciplinar*, *7*(3). https://doi.org/10.37811/cl_rcm.v7i3.7000
Sadler, R. (2017). Quality in Higher Education Academic achievement standards and quality assurance Academic achievement standards and quality assurance. *Srhe.Tandfonline.Com*, *23*(2).
Sánchez, A., & Orozco, J. (2020). Las competencias y la evaluación. Hacia un modelo de evaluación auténtica de los aprendizajes. *Revista Científica de FAREM-Estelí*, *32*. https://doi.org/10.5377/farem.v0i32.9225
Secretaría de Educación Pública. (2018). *Evaluar con enfoque formativo*. Secretaria de Educación Pública. https://cife.edu.mx/recursos/evaluacion-formativa/
Tobón, S. (2017). *Evaluación socioformativa. Estrategias e instrumentos*. Kresearch. https://doi.org/10.24944/isbn.978-1-945721-26-7
Tobón, S. (2018). *El proyecto de enseñanza aprendizaje y evaluación*. CIFE. www.cife.edu.mx
Tobón, S., Pimienta, J., & García, J. (2010). *Secuencias didácticas: Aprendizaje y evaluación de competencias*. Pearson Educación.
Tobón, S., Pimienta, J., & García, J. (2010). *Secuencias didácticas: aprendizaje y evaluación de competencias*. Pearson Educación.
Unesco. (2022). *Reimaginar juntos nuestros futuros: un nuevo contrato social para la educación*. Unesco. https://unesdoc.unesco.org/ark:/48223/pf0000381560.locale=es
Vega, E., & Fraustro, M. (2023). Programa de formación docente en evaluación auténtica enfocado a estrategias, instrumentación y retroalimentación formativa. *Revista de Investigación Científica y Tecnológica*, *7*(1). https://doi.org/10.36003/rev.investig.cient.tecnol.v7n1(2023)6