

Carrying out a school evaluation from the perspective of learning through graphic organizers

Research Article

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Abstract: Today's students face the challenge of learning in a dynamic world, where knowledge is continuously enriched, and the skills of the twenty-first century are becoming mandatory. In this context, the need arises to change the educational landscape, to rethink and implement educational assessment in a new way – adapted to a digitally participative world. The teaching–learning–assessment process requires the continuous adaptation of teachers to different student generations. From the perspective of teacher training, assessment-assisted learning promotes the transition from the notion of controlling knowledge acquisition to a concept of assessment focused not only on learning outcomes but also on the processes involved. This shift signifies the move from a pedagogy of knowledge transmission to a pedagogy of acquiring knowledge and a science of becoming. In the twenty-first century, sophisticated competencies and knowledge can no longer be evaluated through a traditional, outdated, test-based approach that relies on item responses and minimizes the need for human judgment and creativity in answer selection. From the perspective of constructivism, graphic organizers, as pedagogical resources, value active and non-directive pedagogy, favoring real learning contexts, student support rather than intervention, guided discovery, encouragement to explore diverse perspectives, collaborative learning, project-based approaches, etc. Graphic organizers highlight the relationships between concepts, ideas, factors, and so on.

Keywords: Assessment • Competence pedagogy • Digital pedagogy • Graphic organizers

1. Theoretical foundations

1.1 Context

The dominant paradigms in education today are “competence-based pedagogy and digital pedagogy” (EU, Rethinking..., 2020; Joras, 2007).

“*The pedagogy of competences* is generated by the triumph of cognitive psychology over behaviorist/behaviorist psychology” (Manolescu, 2017). Behavioral psychology has generated in education the model of Pedagogy through Objectives. The basic principle of behavioral psychology was the “black box principle.” According to this principle, we don’t know what happens in the student’s mind when he learns, we know what the teacher tells him, and we see what the student does. If what the student does is consistent with what he has been taught, it means that he has learned.

The Model of Pedagogy through Objectives has led to the operationalization of objectives. MAGER’s technique or “The technique of the three C’s,” which are the basis of operationalization, “has dominated the pedagogical practice in Romania since the ‘70s of the last century and is still present today” (Manolescu, 2005). Operational objectives are expressed with the help of action verbs, which specify the observable and measurable behaviors of students during the resolution of work tasks.

At the basis of the operationalization of the objectives of the lesson is “B. Bloom’s taxonomic model” or “The model of hierarchical classification of educational objectives.” A “Dictionary of Operational Verbs” was even developed for all three domains of B. Bloom’s model.

“*Cognitive psychology* entered the scene in the 80s of the last century” (Miclea, 2002). Cognitivists challenge the black box principle promoted by behavioral psychology. They say that we know what happens in the student’s mind when he learns.

The basic principles underlying cognitive psychology are the following:

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- *Learning is achieved by processing information; consequence: attention must be directed to “how to learn”, to cognitive and metacognitive processes, to their specific strategies, to the situational conditions of learning facilitation, to the new roles of the teacher but also of the active student;*
- *Learning is done in stages. Learning is based on the construction of knowledge (Piaget’s stages of ontogenetic development of the human intellect).*

Cognitive psychology has generated the model of the pedagogy of competences, having triumphed since the end of the 80’s. Cognitive psychology has generated the need to move to cognitive education, which “is centered on the development of students’ cognitive processes” (Neacșu, 2024).

The central concept of cognitive pedagogy is competence. Cognitive education looks at what happens in the student’s “black box,” “concerning in particular the procedural and qualitative aspect of knowledge” (Depover & Noël 2000). Cognitive mental processes and their mechanisms become goals and targets of training. “Cognitive education has an interdisciplinary foundation” (Joița, 2003).

2. The paradigm of the pedagogy of competences: Qualitative assessment

The pedagogy of competences, ubiquitous today, has led to new approaches to assessment in education. *The pedagogy of competences promotes the qualitative evaluation of both the learning process and the product;* is associated with the notion of assessment in terms of competences, as a synthetic educational outcome of learning.

Today’s students face the challenge of learning in a dynamic world, where knowledge is continuously enriched, and the skills of the twenty-first century are becoming mandatory. In this context, there is a need to change the educational landscape, to rethink and implement educational assessment in a different way, appropriate to a digital participatory world. “This does not mean breaking, detachment, separation from the past, but implies a positive attitude towards change, a critical takeover of what is valuable in traditional education and mastering a methodology of continuous innovation” (Manolescu, 2002).

The appeal to the notion of competence has become generalized in the field of education, both in theoretical discourse and in educational practice. This notion plays a major role in structuring the contents of school curricula and, as a corollary, in the field of evaluation of acquired

knowledge. It is obvious that the rate at which knowledge is multiplying is overwhelming. *“In this context, it becomes more important to teach students to treat information than to swallow it. The mobilization of knowledge becomes more important. In this context, the notion of competence becomes central. The concept of competence seduced the whole world after the 90s, so few countries where education did not react. This concept is the one that swirls the waters and polarizes debates and options in education and teaching.”* (Dierendonck; Loarer; Rey, 2014).

3. The paradigm of digital pedagogy on the rise

Digital pedagogy is a natural choice. The optimization of assessment through digital tools is a major issue – in fact one of the major characteristics of the last decades, in the context in which the acceleration of changes in education and the transition to high technology require a modern education and a new technological mentality. The task of education and training based on digital competences is not to demonstrate that it has desirable and immediate results in competition with other educational systems, but to replace part of the current structures with a new spectrum of performances, in response to the inherent changes taking place in contemporary society, at all levels.

Specialists in the field of education pay special attention to these changes in the environment in which today’s new generations live.

The theory and practice of assessment through digital tools in education were just beginning. The fact is that in the last decades we can speak of the existence of assiduous searches in the field, both at the theoretical level, *but especially at the practical-applicative level.*

Gradually, the classic way of training and assessment tends to be replaced by the digital one. The use of technology in student assessment is a natural choice for teachers who practice such training. The twenty-first century is the century of a society based on knowledge, and the skills needed by the individual are different from those of the last century. In this context, there is a need to rethink and implement educational assessment in a different way, appropriate to a digital participatory world.

New assessment tools are adapted to the new ways of learning – which often involve collaborative activities.

They ensure the transition to a new pedagogy that involves assessment for learning, in which both teachers and students participate in the process of reflection, dialogue and decision-making, and evaluation includes self-

assessment and inter-collegiate assessment strategies, establishing what are the next steps necessary for further learning.

3.1 The impact of digital pedagogy on teaching–learning–assessment

The teaching–learning–evaluation triad acquires its own characteristics in the conditions of contemporary education deeply marked by the process of digitization of education. *The rapid development of ICT in the coming decades will revolutionise traditional educational processes* by radically changing knowledge acquisition models, the role of teachers and trainers, as well as the institutional framework and assessment methods. At the level of European bodies, it has been considered for some time that the ability to navigate complex systems and to find, evaluate, organize, and use relevant information creatively must become crucial. The idea that teachers will increasingly act as managers of learning processes and as trainers was also put forward. Teachers will have access to “Open Educational Resources (OER)” that can be supported in their work and teaching through openly accessible teaching content. The concept of Open Educational Resources (OER) is based on the open access model. According to a recent UNESCO recommendation, “the application of open licenses to educational materials introduces significant opportunities for the creation, access, use, adaptation, redistribution, preservation and quality assurance of these materials in a more efficient way (...) and creating alternative formats...” (UNESCO, 2019).

Students, in turn, will play an increasingly active role in acquiring and sharing knowledge, in creating and disseminating content. *“The goal of contemporary education should continue to be to provide students with knowledge in different subjects and disciplines, but also to provide them, in addition, with the digital skills and competencies necessary to navigate the digital world.”* In order to achieve this goal, to allow students to better understand and navigate the digitized world in which they live and in which they will live, learning must be recalibrated from the perspective of *“the development of computational thinking.”*

Learning will undergo significant changes, in the sense that due to the outsourcing of the processing and storage of information to machines “Much of the knowledge that people had to learn by heart and retain on their own can today be stored in digital format and retrieved when needed, in a short time and from almost anywhere.”

Digitalization in the educational landscape opens up new starting points for improving the quality of teaching,

learning, and assessment. In terms of assessment, digitalisation provides some starting points for the automatic analysis and evaluation of (then digitalised) learning processes and for their improvement. Through the exploitation of educational data (EDM) and learning analysis methods, algorithms can increasingly take control and management of learning processes. Thus, personalized and highly motivating forms of learning can be developed, and teaching methods can be improved.

Computational thinking is defined as human thinking that “involves solving problems, designing systems, and understanding human behavior, through the use of fundamental concepts of computer science”. Given the more recent literature, there is less consensus on a coherent definition of computational thinking. However, according to Bocconi et al., definitions in the current literature agree on aspects of “*abstraction and generalization, algorithmic thinking, as well as troubleshooting, problem decomposition, and general problem analysis processes*” (Bocconi et al., 2016).

“Computer scientists and social scientists have emphasized the importance of implementing computational thinking in school curricula” (Allan et al., 2010), and “this idea is now widely accepted” (Bocconi et al., 2016).

Despite broad agreement among computer scientists and social scientists on its importance, “*computational thinking has not yet been implemented in policy frameworks on education in the digital age.*” Neither the “New Skills Agenda” (European Commission, 2016), nor the “Digital Education Action Plan” (European Commission, 2018a), nor the “Commission’s DigComp 2.0” (Vuorikari et al., 2016) or “2.1” (Carretero et al., 2017) digital competence frameworks explicitly mention computational thinking. “Most policy documents focus more on digital competence in general” (Juškevičienė & Dagienė, 2018). However, “computational thinking goes beyond the concept of digital competence” (Gómez Chova et al., 2016) and should therefore be treated separately. At the same time, there are indications of a growing interest in computational thinking. For example, “the Commission’s Joint Research Centre has recently published a paper on the topic” (Bocconi et al., 2016), and the latest publication by “the International Association for the Assessment of Educational Performance also explicitly addresses students’ experiences with computational thinking” (Fraillon et al., 2019).

Therefore, *computational thinking* has received increased attention in recent years. As a complement to “technical” digital skills, computational thinking is a skill that will become even more indispensable for future

generations, given the growing role of algorithms and artificial intelligence.

3.2 Interdependencies and interactions of assessment with teaching and learning

Any educational activity necessarily involves these structural elements that are in a relationship of interdependence. “At the base of school instruction are three main types of activities: teaching, learning and evaluation. ... They are in a position of permanent explicit and implicit interaction, of influencing and supporting each other. ... they are inseparable, they form an organic unit, they merge into a single act, because they constitute integral and defining parts of one and the same unitary procedural system. ... all these actions are put at the service of one and the same common cause – obtaining learning ...”.

Regarding the same relationship of interdependence between teaching–learning–evaluation, a great specialist known in the pedagogical literature states that “Together and in full agreement, the three processes – teaching, learning and evaluation – are indispensable for the existence of the educational process. ... Naturally... The unity of these processes is the one that must characterize any training situation and regulate the teaching practice. Any attempt to dissolve that relationship can only prejudice the unitary character of the educational process; apart from this attempt, there would cease to be such a process” (Babanski, 1979).

In pre-university education, in the teaching process, “didactic logic is progressively closer to the logic of science” (Neacșu). In modern didactics, “teaching is no longer conceived as an activity of communication, of transmission of knowledge, but as a problem of organization and management of learning processes, through actions of systematic endowment of those who learn with knowledge, of enrichment of their representations and notions, of management of independent activities, of control and evaluation” (Ionescu).

Learning is the student’s activity, an activity that reflects the psychological aspect of the educational process. Learning is always a personal act; it obeys psychological laws, personal subjectivity. And acquisitions through learning are subject to a logic of initiation of those who learn (at least at certain ages) and a logic of improvement, for adulthood. “*The evaluation* aims to determine the value of the learning outcomes and progress, including the learning processes it explains, to highlight their ‘critical

points’, all in order to improve and optimize these activities, to maximize the results”.

4. Assessment in relation to teaching and learning

In modern educational theory and practice, the role of assessment extends far beyond the mere identification of the effects produced by teaching activities. It is increasingly viewed as a strategic process aimed at performing a diagnostic analysis of both learning outcomes and the educational processes involved. This dual focus allows for the recognition of positive aspects while also identifying areas that require remediation and improvement. Assessment thus becomes an essential tool for understanding not only the final results of student learning but also the dynamics and mechanisms that lead to those results. The objective analysis of student performance acquires a dual pedagogical significance: on the one hand, it serves a formative and orientative function, guiding the trajectory of the teaching–learning process; on the other hand, it fulfills a corrective and regulative role, allowing for necessary adjustments and pedagogical interventions.

From this perspective, *the ameliorative function of assessment* is closely linked to the instructional process, contributing to its dynamism and capacity for self-regulation. It allows teaching strategies to be adapted continuously, based on evidence collected during instruction. Assessment ceases to be a static, terminal event and instead becomes a continuous process of feedback and refinement. It fosters the reconsideration of teaching methods and their alignment with evolving educational needs, supporting both pedagogical innovation and the personalization of learning. Likewise, *the orientation function of assessment* provides valuable information about the direction and coherence of the educational process. It offers feedback not only on how teaching unfolds but also on the quality and progress of learning activities. In this respect, assessment acts as a guide for adopting more appropriate and efficient educational practices.

The realization of these critical assessment functions depends largely on how well assessment is integrated into the overall instructional design and how meaningfully it interacts with the processes of teaching and learning. The regulative function of assessment involves not only the knowledge of results but also the interpretation of those results through the lens of the factors and conditions that have generated them. This approach shifts the focus of evaluation from control to improvement, from judgment

to transformation, and from measuring knowledge to facilitating its construction and meaningful application. It should serve as an active instrument in the educational process – one that encourages reflective practice among teachers, supports learners in their growth, and promotes a culture of continuous pedagogical innovation. A well-designed and well-applied assessment process becomes not only a mirror of what has been achieved but also a compass indicating the direction in which teaching and learning should evolve.

The specific functions of evaluation are mainly aimed at regulating and improving the process, both of the teaching act and of the learning activity. Therefore, these functions refer to both partners in the process: teachers and learners. “Evaluation is an important tool for both teachers and students”.

5. “Visible” teaching–“visible” learning–visible evaluation

Lately, there has been more and more discussion about peddling–learning–visible evaluation. In summary, the “visible” aspect refers to making students’ learning visible to teachers, ensuring the clear identification of the attributes that make visible the progress in the learning process, “The visible aspect also refers to making ‘teaching’ visible to students, so that they learn to become their own teachers” (Hattie, 2014).

The teacher, through evaluation, must know when learning takes place or not, to know when to experiment and when to learn from the experiences had, to know how to monitor, to seek and provide feedback, and to learn when to offer alternative strategies when other strategies do not work. It is very important that teaching is “visible” to the student and “learning” is visible to the teacher. “This explanation of visible teaching refers to teachers as activators, as intentional agents of change, as guides of instruction” (Hattie, 2014). “When teaching, learning and assessment are visible, there is a high probability that students will achieve high levels of learning success. To make teaching and learning visible, an expert teacher is needed, as an ‘evaluator and activator’ (...) The educator must provide guidance and redirection regarding the content understood, taking full advantage of the formative valences of feedback in education. The teacher must have the ability to ‘withdraw’ when learning takes place and when the student progresses towards achieving the desired educational performance. Visible teaching and learning also require a commitment to seek new stimuli and challenges” (Hattie, 2014).

6. Graphic organizers – pedagogical resources and sociocognitive constructs

6.1 The mental structures of the student – the new objectives of education

From the cognitivist perspective, the student must integrate reality into his own mental schemes, rather than acquiring new observable behaviors as in the case of pedagogy through objectives. This perspective highlights the internal transformation of cognitive structures as the true indicator of learning. As Gavrilă (2015) points out, “Graphic organizers are teaching–learning–assessment tools; when integrated into classroom experiences, they enhance students’ ability to understand new material.” (Gavrilă, 2015). These tools, therefore, align with the cognitive view of learning by facilitating the organization and assimilation of complex information into existing mental frameworks. In this regard, learning is characterized not simply by external performance, but by a bigger change in the internal architecture of knowledge. So, learning is characterized by a change in the mental structures of the student. This idea is further reinforced by the author’s observation, which states that “by creating a clear visual representation, graphic organizers support learning by literally allowing students to see the connections and relationships between facts, information, and terms.” (Gavrilă, 2015). The educational vision that derives from the cognitivist approach emphasizes the active mental commitment of students throughout learning, in order to succeed in processing information in depth.

Thus, the teacher will use teaching strategies aimed at:

- helping the student in selecting and coding the information coming from the environment;
- organizing and integrating information;
- finding the information in the long-term memory.

“The educational approach has, over time, been shaped by the influences of behaviorism, cognitivism, and constructivism, with the main directions of action being determined by macro-social and scientific developments. A shift is necessary from the traditional school paradigm – the behaviorist paradigm – towards a learner-centered paradigm, focused on the development of competencies” (Gavrilă, 2017). The teaching methods favored by the cognitivist approach allow multiple learning paths, taking into account the individual variables that influence the way information is processed. The cognitivist teacher will mainly use the new information and communication technologies that allow great

interactivity with the students (intelligent tutorials or computerized simulations).

“From the perspective of constructivism, a paradigm to which we subordinate the present approach of graphic organizers, as pedagogical resources in the educational process, teaching does not consist in transmitting to the student the meanings of another individual who ‘knows’, but in putting the student’s meanings to the test” (Gavrilă, 2017). This implies a shift in the teacher’s role – from authority to facilitator – and places the learner’s mental activity at the center of the instructional process. The focus is thus redirected from knowledge reproduction to knowledge construction, with graphic organizers serving as cognitive mediators that support the personalization and internal negotiation of meaning. Contemporary education is increasingly focused on developing the student’s cognitive structures and thinking skills as a primary objective, rather than simply transmitting information. This shift is rooted in a constructivist vision of learning, which emphasizes active student engagement in meaningful contexts. As Gavrilă observes, “a constructivist vision of education values active and non-directive pedagogy, favoring the real learning context, supporting the student, rather than intervention, directed discovery, encouraging the exploration of different points of view, collaborative learning, and project-based approach” (Gavrilă, 2017). In this paradigm, learning experiences are designed to engage learners in constructing knowledge through interaction and exploration, aligning educational objectives with the demands of a dynamic, knowledge-based society.

Within the constructivist framework, the student is no longer a passive recipient of content but rather an active agent in the learning process. The learner assumes a proactive role – he is “the decision-maker in his knowledge building process, accompanied and supported by the teacher, who has the task of offering him a rich and stimulating learning environment” (Gavrilă, 2017). Knowledge itself is not treated as a fixed commodity delivered by the teacher; instead, “knowledge is open to negotiation and, in this sense, the social context plays a major role in learning. Constructivist learning is a construct of reality, a social construct” (Gavrilă, 2017). In other words, understanding is co-constructed through dialogue and collaboration, meaning that learning is inherently a socio-cognitive activity. The classroom thus becomes a community of inquiry where students actively negotiate meaning, and this social interaction helps shape and reconfigure each student’s mental structures. Implementing this new paradigm of knowledge construction requires a profound change in teaching methodology. Educators are now encouraged to design learning activities that center on

the student’s active participation. As one author explains, “a new paradigm of knowledge is equally supported by the methodological motivation of teachers,” which compels teachers to select modern, complex methods that involve students actively in their own learning (Gavrilă, 2017). In practice, this means moving away from traditional lecture-based instruction and adopting strategies that require learners to engage, discuss, investigate, and create.

In a constructivist classroom, the teacher is no longer the sole authority imparting knowledge, but rather a mentor who guides and supports learners’ inquiry. As Gavrilă notes, “the teacher, from a central actor, becomes a facilitator, who guides the student in learning, even as a partner.” Correspondingly, “the student learns starting from his own motivation, learns responsibly, and learns by cooperating, through involvement and personal action” (Gavrilă, 2017). This redefined teacher–student relationship nurtures student motivation and accountability. Students learn how to learn – they set goals, seek out information, and reflect on their understanding with the teacher’s support. The outcome is a more personalized and empowering learning experience: each student actively builds and adjusts their mental models, while the teacher provides feedback, resources, and encouragement along the way.

6.2 Graphic organizers – methodological concept with multiple educational valences

Within this constructivist and student-centered paradigm, graphic organizers emerge as invaluable cognitive tools that support the development of mental structures. Graphic organizers – such as concept maps, mind maps, Venn diagrams, and flowcharts – are visual frameworks that allow learners to externalize their internal thought processes. By mapping out ideas and their interconnections, students make their thinking visible. This practice helps learners to organize and evaluate their knowledge: they can identify key concepts, see relationships between ideas, and pinpoint gaps or misconceptions in their understanding. Research in cognitive psychology suggests that new information is learned more meaningfully when it can be related to existing knowledge structures. Therefore, “in designing the didactic strategy, the teacher can use a new, current methodological concept, with multiple educational valences, both in teaching, in learning, and in evaluation – graphic organizers” (Gavrilă, 2017).

Graphic organizers facilitate this process by providing a structured visual space for students to link new concepts

to their prior knowledge, thereby promoting deeper comprehension and memory retention. In essence, these tools help students reconfigure their mental schemata – as they add new nodes and connections, they are actively restructuring how they conceptualize the subject matter. Graphic organizers also serve an important evaluative function in the learning process. In constructivist pedagogy, assessment is not limited to a final exam or a one-way judgment of performance; instead, it is integrated as an ongoing, formative process that guides both teaching and learning. Gavrilă's work underlines, "the role of evaluation is to diagnose students' results and the learning processes, highlighting positive aspects as well as areas to be remedied" (Gavrilă, 2017). In this light, graphic organizers can be used as formative assessment tools: when a student creates a concept map or other organizing tools, the teacher (and the student themselves) gains insight into that student's current mental structure. For example, a concept map revealing well-connected ideas in some areas but thin links in others provides an objective snapshot of what the learner understands and where misconceptions might lie.

The use of graphic organizers has proven to be a powerful instructional strategy for enhancing students' cognitive engagement and structuring knowledge in meaningful ways. These tools support not only the organization of information but also the visualization of conceptual relationships, thus stimulating deeper processing of content. In traditional educational settings, teachers tend to rely predominantly on oral exposition, reading, and writing as the primary means of transmitting and expressing knowledge. However, this linear, language-centered approach may limit learners' ability to internalize and manipulate complex information. Research highlights the added cognitive value of incorporating visual elements into learning, highlighting the fact that by "using graphic organizers is an effective way to get students thinking, visualizing, and arranging their knowledge. In a traditional classroom, most teachers rely on oral exposition, reading and writing to represent and communicate concepts. Studies show that "when students create non-linguistic representations of their knowledge, there is an increase in brain activity" (Gavrilă, 2017). This finding supports the idea that graphic organizers serve not only as pedagogical supports but also as tools that actively engage the learner's brain in constructing, transforming, and reinforcing mental representations of knowledge.

An essential dimension of modern pedagogy is the development of students' higher-order thinking skills through structured and reflective learning activities. Among the tools that facilitate this process, graphic

organizers play a prominent role by requiring learners to engage in analysis, synthesis, and planning. These tools not only help visualize knowledge but also activate the learner's cognitive and metacognitive resources. Whether students are constructing a concept map, designing a process diagram, or simply drafting an outline, they must mobilize a range of analytical competencies. As emphasized in the literature, "whether students are creating a concept map, a process diagram, or a simple outline, they need to use analytical skills to clarify relationships, organize their thoughts, and formulate plans or process steps" (Gavrilă, 2017). This process involves identifying key elements, establishing connections between concepts, and arranging information hierarchically or sequentially in order to convey structure and meaning.

Moreover, the act of constructing visual representations contributes significantly to information retention. Cognitive psychology research has consistently shown that externalizing mental models enhances the learner's ability to encode and retrieve knowledge, especially when visual, spatial, and semantic dimensions are simultaneously activated. The practice of developing such representations fosters not only individual cognitive processing, but also collaborative learning, as students are encouraged to explain, negotiate, and refine their ideas in dialogue with others. As the cited statement continues, "the process of creating representations helps students retain information and develops their ability to convey and exchange ideas in collaborative activities" (Gavrilă, 2017). In this way, graphic organizers serve a dual function: they act as internal scaffolds, supporting the organization of thought, and as external mediators, facilitating communication and the co-construction of meaning within a learning community.

By prompting learners to organize content meaningfully, engage in reflective structuring of knowledge, and share their cognitive pathways with peers, graphic organizers align closely with the aims of twenty-first-century education – fostering autonomy, critical thinking, and dialogic competence. These tools thus transcend their apparent simplicity, emerging as complex pedagogical resources grounded in cognitive science and constructivist theory. Their value lies not merely in what they depict, but in what they stimulate: deeper comprehension, metacognitive regulation, and collaborative epistemic activity.

In the contemporary educational landscape, the emphasis on personalized learning and differentiated instruction has brought renewed attention to the utility of graphic organizers as tools that accommodate diverse cognitive styles and support the structuring of knowledge. Graphic organizers are more than simple visual aids; they

function as representations, models, or illustrations designed to visualize information in ways that facilitate cognitive processing and retention. Their format – be it a web, chart, tree diagram, or flowchart – translates abstract content into structured visual forms that help learners grasp complex relationships and systems of meaning. These tools are formally defined as “representations, models or illustrations used to visualize information,” and their pedagogical relevance becomes particularly evident when they are “integrated into learning activities by people who possess a visual learning style” (Gavrilă, 2017). While they provide significant benefits to visual learners, their utility extends to a broad range of learner profiles, due to their capacity to externalize abstract relationships between ideas in a concise and accessible format.

Graphic organizers are extremely effective in emphasizing different types of conceptual relations – equivalence, subordination, and causality – thus fostering both conceptual clarity and analytical thinking. As Gavrilă R.M. notes, “graphic organizers are extremely useful to all categories of people who are trained, because they highlight the relationships between concepts, ideas, factors (relationships can be equivalence, subordination, causal, etc.)” This capacity to visually articulate complex information is particularly advantageous when large volumes of content must be assimilated within short instructional timeframes, or when addressing the cognitive needs of early learners, as they “facilitate the understanding of knowledge when a large amount of information is conveyed in a given period of time, or at young school ages” (Gavrilă, 2017). Consequently, graphic organizers contribute to cognitive economy and epistemic structuring, serving as tools for both instruction and formative evaluation. They represent one of the most coherent expressions of a sociocognitive educational model that values clarity, accessibility, and student agency.

The integration of graphic organizers into the instructional process constitutes a significant pedagogical innovation in the landscape of contemporary didactics, particularly when aligned with the principles of active-participatory teaching approaches. Unlike traditional methods that often rely on passive content transmission and standardized delivery, graphic organizers bring forth a transformative shift in both teaching and learning. Their use implies a reconfiguration of the instructional act – from a unidirectional delivery of knowledge to a dynamic, student-centered interaction where learning becomes both conscious and intrinsically motivated. As Gavrilă (2017) insightfully observes, “the design of an active-participatory didactic approach, with graphic organizers

adequately integrated, according to the pedagogical landmarks, in order to obtain the desired results in the classroom, facilitates the students’ understanding and transforms learning into a conscious and motivating act.” This affirmation reflects a deep alignment with current theories of constructivist and socio-cognitive learning, which place the learner’s active involvement and metacognitive processing at the heart of educational success. What really makes the author’s contribution especially valuable is her ability to elevate graphic organizers from the status of supplementary visual aids to that of structuring mechanisms of knowledge, capable of supporting the student in constructing personal meaning from content. Through her vision, graphic organizers become not just facilitators of retention but tools for conceptual transformation. They allow learners to navigate complexity, visualize hierarchical and relational structures, and ultimately, develop coherent mental representations of the topics studied. This pedagogical shift not only enhances comprehension, but also fosters autonomy, reflection, and intellectual engagement – qualities that are increasingly central to twenty-first-century education.

One of the most notable achievements in this theoretical work is her systematic classification of graphic organizers, which offers educators a clear, actionable model for selecting and implementing these tools based on instructional intent and cognitive objectives. According to her typology, “several categories of graphic organizers are identified, depending on the targeted field of action: comparative graphic organizers; sequential graphic organizers; description-type graphic organizers; cause-effect graphic organizers; problem-solution graphic organizers” (Gavrilă, 2017). This categorization is not merely descriptive; it serves a strategic instructional function. By aligning the format of the organizer with the cognitive processes required by the learning task, educators can optimize comprehension and facilitate higher-order thinking. For instance, cause-effect organizers are particularly effective in exploring causal chains in science or history, while problem-solution diagrams help in deconstructing scenarios in real-life decision-making or literary analysis. Moreover, it addresses a critical gap in the literature on instructional design: the lack of clear pedagogical guidance on how and why specific types of graphic organizers should be used to serve distinct educational purposes. Her work stands out for offering not only theoretical clarity but also practical pedagogical tools that can be easily adapted to various curricular contexts. The ability to match graphic organizer types with the learning outcomes desired represents a major innovation, enabling teachers to move beyond generic implementation toward a context-

sensitive, evidence-informed practice of visual learning. Her research implicitly affirms the inclusive and adaptive potential of graphic organizers. These tools can be differentiated according to learners' developmental stages, cognitive styles, and prior knowledge levels, making them powerful instruments for equity and personalization in education. In this regard, the author's conceptual model resonates with broader educational reforms centered on competency-based learning, universal design for learning (UDL), and formative assessment.

In a more refined and intellectually layered contribution, Gavrilă introduces a second tier of classification, moving beyond the structural typologies of graphic organizers toward an analysis of their cognitive function and instructional purpose. This evolution in her framework underscores not only the diversity of graphic organizers but also their alignment with the mental operations that underlie complex learning. She notes, "frequently, depending on the task pursued, graphic organizers are grouped into four categories, which aim to: Conceptualization; sequencing; cyclicity; hierarchization" (Gavrilă & Nicolae, 2015, p. 16). This conceptual taxonomy is of considerable theoretical significance, as it anchors the design and selection of graphic organizers within a neurocognitive understanding of learning processes, bridging instructional methodology with principles derived from cognitive science. By categorizing graphic organizers based on the nature of mental operations they support, Gavrilă advances the field with a toolset that is flexible, purposeful, and deeply learner-oriented. This classification system does not merely function as a pedagogical reference – it reflects a high-order theoretical synthesis that repositions graphic organizers as structuring agents of thought. In doing so, the author reconceptualizes these tools not just as instructional aids but as sociocognitive constructs – external mediators that shape, guide, and refine the learner's internal representations. Through their deliberate design and implementation, graphic organizers cultivate metacognitive awareness, reinforce logical reasoning, and help learners identify and internalize abstract relationships between ideas. Their role extends into fostering cognitive self-regulation, allowing students to actively organize and reorganize their knowledge as they progress through stages of understanding. In this respect, the organizer becomes a cognitive artifact – at once visual, interactive, and epistemologically generative.

Even so, one of the most compelling contributions of the author's work lies in the pedagogical elasticity and instructional versatility she ascribes to graphic organizers. As she affirms, "there are countless possibilities for using graphic organizers" (Gavrilă, 2017), thereby challenging conventional, rigid applications and encouraging teachers

to rethink how and when these tools can be integrated into the learning process. She highlights that graphic organizers "can be used at the beginning of a learning unit and then references can be made to them during the course of the unit or they can be used as evaluation tools" (Gavrilă, 2017). This perspective reflects a dual functional logic: graphic organizers serve both as didactic instruments – to activate, structure, and visualize knowledge – and as diagnostic tools for continuous formative evaluation. Their reusability throughout the instructional sequence also supports longitudinal coherence in learning, helping students build upon prior conceptual frameworks while accommodating new content in a visually scaffolded manner. Gavrilă's operationalization of these categories into practical educational design stands as a landmark moment in pedagogical theory. She emphasizes, "we operationalize the above-mentioned classification, with graphic organizers that can be integrated into the monodisciplinary teaching strategy or in an integrated approach, for primary education" (Gavrilă, 2017). This indicates a methodological maturity and a deep sensitivity to the needs of contemporary classrooms, where teaching strategies must be adaptive, cross-disciplinary, and inclusive of diverse cognitive styles. In addition, her approach is firmly grounded in curricular reality – it responds directly to the structural needs of primary education, a stage in which learners require high levels of conceptual clarity, task orientation, and visual mediation.

Through this multidimensional perspective, the author elevates the status of the graphic organizer from a supplementary material to a core instrument of pedagogical architecture, especially in early education. Her contribution is not only theoretical but also operational, offering teachers concrete, transferable tools embedded in a flexible framework that supports both discipline-specific instruction and integrated, interdisciplinary learning experiences. As such, her work represents a major advancement in the field of instructional design, uniting cognitive theory with classroom practice in a way that is both elegant and empirically grounded. In reshaping how educators conceptualize, select, and apply graphic organizers, Gavrilă redefines the instructional landscape itself – emphasizing clarity, engagement, and learner agency as non-negotiable pillars of quality education.

7. The applicability of graphic organizers in school evaluation

In the current educational paradigm, school evaluation transcends its traditional boundaries, evolving from a

limited function of control, verification, and final examination into a continuous, formative, and integrative component of the teaching–learning process. This shift reflects a profound rethinking of assessment’s purpose and potential in modern pedagogy. As has been aptly stated, “school evaluation today goes beyond the boundaries of control, verification and examination, establishing itself as a permanent evaluation process, complementary to the teaching–learning activity” (Gavrilă, 2017). Evaluation is no longer a concluding act that merely quantifies student performance; rather, it becomes an ongoing dialogue between the learner, the content, and the teacher – a recursive process of feedback, reflection, and adjustment. Through this reconceptualization, the evaluative function acquires a regulatory and developmental role. Instead of being an endpoint, it functions as a guiding instrument, informing instructional decisions, revealing learning needs, and prompting pedagogical refinement. As emphasized in the literature, “the role of the evaluation activity has a regulating meaning, of permanent improvement of the process, as a whole” (Gavrilă, 2017). This aligns closely with the principles of formative assessment, where the focus is not only on measuring achievement but also on promoting growth, enhancing motivation, and enabling the learner to assume greater responsibility in the construction of knowledge. Evaluation, thus understood, is not an interruption of learning, but an inherent part of it – a strategic tool for educational optimization and personalization. As Gavrilă (2017) observes, “The formative dimension of evaluation is today an important aspect for teacher-evaluators, since their priority evaluative object is the students’ learning process, not only the behavior manifested by them, as a result of learning. Thus, the formative dimension of the instructive-educational process becomes a priority, determining the focus on the training and development of skills, a current orientation, specific to many education systems, including the Romanian education system.” This approach means that teachers prioritize the ongoing development of students’ skills and understanding, rather than only recording the behavior or results that manifest at the end of learning. Such a formative orientation aligns with trends across many education systems, including Romania, emphasizing continuous feedback and improvement during instruction.

Complementing the formative evaluation approach is an increasingly emphasized focus on competency-based educational outcomes, which redefines both the goals and the methodologies of contemporary education. Within this paradigm, the aim of instruction transcends the simple transmission of knowledge and extends into the realm of cultivating students’ capacities to use knowledge

meaningfully, ethically, and autonomously. As Gavrilă (2017) asserts, “Competences are complete ends of the educational process, by virtue of which the student is able to overcome the cognitive component of the personality. He has information, is able to apply it and is aware of the axiological dimensions of his own learning. Thus, competence, as the finality of the educational process, generates a broad, efficient learning, learning for life.” This conception positions competence as an integrative and multi-dimensional construct, encompassing not only cognitive acquisition but also applied proficiency and axiological awareness – meaning the student does not merely know something, but understands its value and acts responsibly upon it.

Such a model underlines the holistic nature of learning: students must not only retain and recall information but also demonstrate their ability to adapt and apply that knowledge in various real-world and ethical contexts. This shift in emphasis from memorization to application and reflection implies a major transformation in the structure of teaching, curriculum development, and – most significantly – evaluation.

The evaluation of these complex and dynamic outcomes necessitates a carefully structured framework built upon explicit performance standards and well-defined evaluative criteria. Gavrilă (2017) provides critical insight into this need when she observes: “General and specific skills are evaluated today, during and at the end of a year or training cycle. In the evaluation approach, the evaluation of students’ competences involves the creation of reference systems, with quantitative and qualitative criteria and indicators. Considered true referentials in the evaluation approach, the evaluation standards record the results on different levels of performance.” This statement highlights the necessity of establishing multi-tiered evaluative referentials, composed of both qualitative descriptors (e.g., clarity of reasoning, originality of solution, and depth of insight) and quantitative metrics (e.g., frequency, accuracy, and completeness). These referentials function as benchmarks for interpreting student progress and achievement, enabling both diagnostic and summative insights into the learner’s development.

In this light, the role of the teacher-evaluator is profoundly transformed. No longer merely an examiner of factual recall, the educator becomes an architect of evaluative experiences designed to reveal the learner’s evolving capacities. Competency-based assessment, especially when tied to clear indicators, enables a nuanced mapping of student performance across a continuum, ensuring that evaluation is not only fair and objective but also pedagogically meaningful. It recognizes various degrees of

mastery, supports differentiated instruction, and informs targeted intervention strategies.

The shift toward competencies and formative assessment has profoundly influenced the evolution of modern educational practices, catalyzing a comprehensive modernization of evaluation methodologies. In contemporary pedagogy, this transformation is not merely a superficial update but rather a structural reorientation of the goals, tools, and strategies employed in the assessment process. One of the most prominent dimensions of this transformation is the increasing integration of alternative and complementary methods into the traditional framework of school evaluation, “An important dimension of the modernization of the evaluation approach is reflected by the current methodological system, the range of evaluation methods being extended with a new category of complementary and alternative methods in the current educational approach” (Gavrilă, 2017). This assertion captures the fundamental shift from rigid summative testing toward a more flexible, multidimensional evaluation paradigm, capable of capturing the full complexity of student learning. In other words, the role of the teacher has expanded to include the careful design and implementation of varied assessment methods.

In alignment with this perspective, the act of evaluation is increasingly directed at investigating the cognitive and metacognitive processes that students employ while learning, rather than exclusively focusing on their final outputs. The author further clarifies this direction when she observes, “Thus, by applying alternative methods in the evaluation process, the teacher will focus on the evaluation of cognitive processes, not on learning outcomes, according to the traditional paradigm. In this context, it is necessary to diversify the evaluation strategies and to alternate the traditional evaluation methods, techniques and tools with the modern ones (alternative/complementary), in order to make the evaluation approach more efficient.” This methodological diversification aims to capture not only what students know, but also how they arrive at their understanding, offering insight into their reasoning, decision-making, creativity, and self-regulation. Such an approach demands a reconsideration of the instruments and procedures traditionally associated with school assessment. The conventional emphasis on standardized testing and oral/written examinations is giving way to more interactive, reflective, and student-centered alternatives. These new methods emphasize active involvement in the assessment process, foster autonomous learning, and provide educators with richer data about individual learning trajectories.

Illustrating this rich methodological palette, Gavrilă (2017) enumerates a wide array of modern evaluation tools

that can be utilized in the construction of complex evaluation strategies: “The offer is extremely diversified, the teacher being able to opt for a series of modern evaluation methods and techniques in the construction of the evaluation strategy: concept maps, the R.A.I. method, the 3-2-1 technique, the project, the portfolio, the reflective journal, the investigation, the systematic observation of the students’ behavior, self-evaluation, etc.” Each of these instruments brings with it distinct advantages, offering pathways to assess analytical thinking, collaborative skills, creativity, research abilities, and self-awareness – competencies that are often invisible to traditional evaluative lenses. What emerges from this integration is a hybrid assessment model, in which traditional and innovative methods co-exist, responding to the nuanced realities of the educational process. Such a model enables the triangulation of assessment data, enhances student agency, and promotes constructive feedback cycles that support long-term development rather than mere performance measurement.

Among the spectrum of alternative evaluation methods increasingly embraced in contemporary pedagogical practice, graphic organizers – particularly concept maps – stand out as exceptional instruments for both facilitating and assessing student learning. Their effectiveness lies not only in their visual appeal or structural clarity but more importantly in their profound capacity to make the processes of cognition and understanding visible. In contrast to traditional, product-oriented evaluation methods, which often emphasize recall and reproduction, graphic organizers allow educators to access and analyze the internal architecture of student thought, offering a window into the dynamic and often non-linear processes by which knowledge is acquired, structured, and applied.

As Gavrilă (2017) convincingly argues, “Graphic organizers, widely known in the form of concept maps, represent a category of alternative evaluation tools, recommended in the evaluation approach. The multiple formative valences of alternative methods recommend them as appropriate ways of optimizing evaluation practices, contributing to the co-participation of students in the evaluation of their own results. A complex assessment strategy involves both traditional and complementary methods so that it is relevant to the skills being assessed.” This perspective articulates a holistic vision of assessment, in which learners are not merely passive subjects of evaluation, but active participants who engage in metacognitive processes, reflect on their own performance, and contribute to their own educational trajectory. The formative dimension of graphic organizers is particularly salient. When students are invited to externalize their

thinking by creating visual representations – whether hierarchical, sequential, cyclical, or relational – they are engaging in a form of learning that is simultaneously analytical and constructive. This process supports cognitive structuring, enhances memory retention, and fosters the ability to see relationships between isolated pieces of information. As such, graphic organizers become tools for conceptual clarity, helping students to integrate new knowledge into existing schemas and to articulate their understanding in increasingly sophisticated ways.

Moreover, the use of graphic organizers supports one of the central goals of competency-based education: the development of autonomous, reflective learners. By involving students in the assessment process, these tools encourage self-evaluation, critical thinking, and ownership of learning. They provide students with the opportunity to monitor their own progress, identify areas of misunderstanding, and actively participate in the process of academic growth. This participatory role significantly shifts the power dynamics of the classroom, fostering a more democratic and learner-centered environment.

In practical terms, graphic organizers can be used across all phases of the instructional cycle. At the beginning of a learning unit, they serve to activate prior knowledge and map initial understandings. During instruction, they function as tools for structuring new information and facilitating comprehension. And in the evaluation phase, they offer insights into the depth and coherence of student learning, revealing how well students are able to synthesize, apply, and transfer knowledge. When integrated into a multi-modal evaluation strategy that combines both traditional and alternative methods, graphic organizers ensure that assessment remains aligned with curricular goals and educational competencies, while also addressing the individual needs and learning styles of diverse student populations. The innovation introduced by the aforementioned author lies not only in the advocacy of graphic organizers as useful tools but in the rigorous and systematic way in which she integrates them into the theoretical and methodological architecture of modern education. Her doctoral research offers a comprehensive taxonomy of graphic organizers, linked both to cognitive functions and to pedagogical objectives, which allows educators to tailor their use in function of content, discipline, and learner profile. By doing so, Gavrilă repositions graphic organizers not as peripheral didactic aids, but as central components of a modern, formative, and competency-oriented evaluative system.

Therefore, it can clearly be deduced that the incorporation of graphic organizers into school evaluation marks a paradigm shift in assessment philosophy. Far

from being mere visual summaries, they represent socio-cognitive constructs that mediate knowledge acquisition, scaffold complex thinking, and support reflective learning.

Modern educational assessment is increasingly intertwined with the learning process, evolving beyond traditional exams to include diverse, student-centered methods “We are therefore witnessing a complex evolution in the evaluative approach, which places school evaluation in direct relation to effective school learning, centered on the student, who has become co-responsible and meta-evaluative in the instructional-educational process” (Gavrilă, 2017). This shift means that evaluation is no longer a separate “*after-the-fact*” judgment of learning, but part of an ongoing, complex methodology integrated with instruction. Within this diversified toolkit of modern evaluation, graphic organizers have emerged as powerful socio-cognitive instruments that connect teaching, learning, and assessment. By their very nature, graphic organizers require students to visually structure knowledge, making relationships between concepts explicit, and in doing so, they serve a dual role: they facilitate deeper cognition for the learner while simultaneously providing teachers and students with a tangible artifact for evaluation. Because graphic organizers externalize thinking in a visual form, they make the student’s understanding visible and thus open to reflection, discussion, and feedback. This aligns perfectly with the student-centered, co-responsible evaluation paradigm: the learner actively participates in constructing and examining their own knowledge representation, effectively becoming a partner in the evaluative process rather than a passive subject of evaluation.

One of the most significant contributions of graphic organizers to school evaluation is the enhancement of student self-evaluation capacity, as every time learners create a graphic organizer to summarize a topic or solve a problem, they also actively assess what they know, decide how to categorize and link information, and identify what might be missing or unclear. This process inherently encourages self-assessment: students gauge their own understanding as they attempt to fill in the organizer and often recognize gaps or misconceptions in their knowledge. For example, a student constructing a concept map on a science topic will quickly realize if they cannot explain how certain concepts connect, signaling an area that needs more study. By engaging with such alternative formats of assessment, students become more aware of their own performance relative to established criteria, “the consequences of applying alternative methods in school assessment develop students’ self-assessment capacity, becoming aware of their own performance, in

relation to the grading and assessment scale established on the basis of performance descriptors (...). The regulating role of feedback in school evaluation has become increasingly important, both for teachers and students, each being able to make value judgments, with an appreciative-corrective role” (Gavrilă, 2017).

In other words, using alternative assessment methods helps learners become conscious of their performance level and understand the why behind their results, especially when clear performance descriptors or rubrics are provided. This awareness is key to self-regulation: students learn to measure their work against explicit standards and can begin to identify strengths and weaknesses in their understanding on their own. Over time, this nurtures a meta-evaluative capacity – students not only reflect on what they learned, but also on how the evaluation is conducted and what it values. For instance, a learner who knows the rubric criteria for a concept map will self-evaluate whether their map meets those criteria, and in doing so, they also appreciate the “*axiological and ethical dimension*” of evaluation – they grasp why certain qualities are valued and consider the fairness or rigor of the assessment process itself.

This kind of meta-cognitive and meta-evaluative reflection transforms students into active agents in assessment. They become co-responsible for judging the quality of their work, mirroring the instructor’s evaluative perspective. Such capacity is invaluable: it means the student can critically analyze evaluation criteria and results, leading to a deeper understanding of academic expectations and ethical standards (e.g. recognizing what constitutes a good argument or a coherent explanation, and why those elements are important). Graphic organizers also significantly contribute to the regulation of feedback within the evaluation process. Because a graphic organizer provides a clear visual snapshot of a student’s thinking, it enables more immediate and focused feedback conversations between teacher and student (or even among peers). In traditional assessments, feedback often comes in the form of a grade or a few comments after completion, but with graphic organizers used formatively, feedback becomes a continual, iterative dialogue. A teacher can quickly scan a student’s organizer (say, a mind map or a flowchart drawn during class or as homework) and pinpoint misconceptions or missing pieces at a glance.

This allows the teacher to give targeted, constructive feedback on specific areas – for example: “I see you connected concept A to concept B, but you haven’t explained the link; can you clarify that relationship?” or “You included the main themes in your web, which is great, but consider adding a branch for the historical context,

as that’s also important.” Such feedback is both appreciative (praising what is done well) and corrective (guiding improvement), embodying what Gavrilă terms an “*appreciative-corrective*” role.

The regulating role of feedback means that the information from the assessment is used to adjust ongoing learning and teaching. Crucially, graphic organizers invite students to partake in this feedback cycle, and since the student constructed the organizer, they are often eager to discuss their choices and reasoning. The visual format makes it easier for them to understand the teacher’s comments – they can literally see where an idea might be misplaced or how an argument could be better structured.

They can then revise their organizer (or make a note of changes for next time), thereby immediately applying the feedback to improve their understanding. In effect, the graphic organizer becomes a mediator of feedback: a shared reference point that helps clarify communication between teacher and learner. This process supports a key principle of effective evaluation: *feedback should lead to growth, not just inform about past performance*. When students modify their organizers based on feedback – adding a missing connection, reorganizing a hierarchy of concepts, or incorporating an overlooked idea – they are actively using feedback to regulate their learning. This transforms evaluation into a formative loop rather than a summative endpoint: each cycle of creating, feedback, and refining moves the student closer to mastery. Additionally, because graphic organizers emphasize structure and connections, they encourage students to give peer feedback as well. For example, classmates can exchange concept maps to compare interpretations of a topic, often prompting peer evaluation discussions (e.g., “*I didn’t include that detail in mine – why did you? Perhaps I should if it’s important.*”). Such social interaction around the organizer further solidifies understanding and normalizes the idea that evaluation is a collaborative, learning-oriented process rather than a punitive one.

All of these practices underscore why feedback is increasingly seen as integral to school evaluation: it continuously regulates the teaching–learning process, ensuring that evaluation serves learning by highlighting what to sustain and what to improve.

Graphic organizers successfully epitomize the “*diversified instrumentation of contemporary evaluation*” mentioned by Gavrilă. They represent an alternative assessment tool that complements tests and essays by capturing facets of learning that those traditional methods might miss. For instance, a multiple-choice test might reveal whether a student can recall facts, but a concept map can reveal how well the student organizes and

interrelates those facts into a coherent knowledge structure. This makes graphic organizers particularly useful for assessing higher-order thinking skills: through a well-designed organizer, students demonstrate analysis, synthesis, and even evaluation (in the Bloom's taxonomy sense) of content, by deciding what is important and how elements should be arranged. Thus, when teachers incorporate graphic organizers into evaluation, they are acknowledging that learning is multi-dimensional and that students should have multiple ways to "*show what they know*." The versatility of graphic formats (from timelines and cycles to cause-effect charts and argument maps) means that an assessment can be tailored to the nature of the content and the learner's needs. All of this contributes to a more inclusive and fair evaluation regime, wherein students are not all forced into one mold to prove their knowledge. Instead, as Gavrilă's analysis suggests, *the evaluation approach is becoming more complex, using a variety of instruments like graphic organizers to get a fuller picture of student learning*. This complexity is a strength: it aligns evaluation methods with the richness of real learning experiences. Finally, it is important to highlight the socio-cognitive dimension of graphic organizers in evaluation. Graphic organizers are cognitive tools – they aid internal thinking processes by allowing students to visualize and manipulate ideas – but they are also social communication tools because they produce an artifact that others can interpret. In a classroom context, when a student presents their mind map or diagram, it becomes a shared object of discussion.

The teacher and peers can inquire about the student's reasoning ("Why did you place this concept here?") and the student can articulate their thought process, thereby practicing *metacognition* (thinking about their own thinking). This social exchange around the organizer means that evaluation is happening in a dialogic manner: understanding is being negotiated, clarified, and extended through interaction, not just measured unilaterally. The graphic organizer facilitates a form of meta-evaluation at the classroom level: the class collectively reflects on what good understanding looks like as they examine different representations. Students learn to evaluate the quality of information and reasoning presented – both their own and their peers' – fostering critical thinking about the criteria of quality in a given subject. In this sense, graphic organizers help students and teachers alike to analyze the evaluation process itself (e.g., discussing what made one concept map effective and another one lacking clarity brings out implicit values and standards of the discipline).

This reflection on the evaluation criteria and process is exactly the kind of meta-evaluative engagement that empowers students. It demystifies assessment by making expectations explicit and involving students in the appraisal of learning. Students become comfortable with the notion that evaluation is not just something done to them, but an ongoing reflective practice they are involved in. They learn that the goal of evaluation is improvement and understanding, not judgment – a perspective reinforced every time a graphic organizer is used to spark feedback and revision.

7.1 Evaluation strategies

In general, the strategy expresses the intention to build an evaluative approach for various reasons. Any educational-evaluative strategy begins with the option for a major mode or type of evaluation. The main/essential reason for modern school assessment is to ensure the success of students. The "evaluation strategy" does not yet benefit from a definition that fully covers the complexity of the problem concerned and that captures the accents/trends of modernization often invoked.

As far as we are concerned, we will opt for the meaning proposed in the following definition: "*The strategy in educational evaluation represents the responsible deliberative conduct of the evaluator in all aspects and on the entire extent of the evaluation process, as well as the option for the most appropriate and appropriate type/mode of pedagogical evaluation, in the given instructive-educational situation*" (Ungureanu, 2002).

In a broad sense, strategy designates a set of coordinated actions in order to achieve a goal. "The strategy is aimed at mastering the actions, ordering them in order to produce an expected result" (Hadji, 1996). In the educational field, the evaluation strategy is a preliminary and indicative approach that prefigures the perspective from which the evaluation will be conceived.

Initial-formative-summative assessments have interdependencies and complementarities. This classification of the strategies/types of evaluation (initial-formative-summative) is based on three composition criteria:

- 1) "The quantity and quality of the information or experience that the student must accumulate and that must be evaluated. According to this criterion we distinguish partial evaluation or global evaluation" (Gavrilă, 2017);
- 2) "The time axis to which the evaluation relates: at the beginning, during and at the end of the training" (Gavrilă, 2017);

- 3) “The reference system for issuing value judgments on the evaluated results: criterion evaluation (based on objectives) or comparative, normative, classificatory evaluation” (Gavrilă, 2017).

“The combination of these three criteria results in three types of strategies that are present in the activity of any teacher – evaluator” (Ion T. Radu, 1999):

- a. *Initial assessment;*
- b. *Formative and formative assessment;*
- c. *Summative assessment.*

The initial evaluation is carried out at the beginning of a training program; it aims, among other things, to identify the conditions under which students can integrate into the learning activity that follows. It is one of the premises for designing and ensuring the success of the respective program. “The initial evaluation is necessary, ensuring the optimal preparation of any instructive-educational program. The initial evaluation mainly fulfills two functions: 1) the diagnostic function; 2) the prognostic function” (Cerghit, 2013; Radu, 2000).

The concept of formative assessment was launched by Scriven in 1967 with the launch of the theoretical debates, but also in the educational action plan of a new concept regarding “the approach to assessment as an activity that must be constantly and operatively integrated throughout the instructional process” (Scriven, 1967). It is that type of evaluation that is carried out throughout a pedagogical approach, “it is frequent in terms of time and its purpose is to remedy the gaps or errors made by the students” (Bloom). “*Formative evaluation does not judge and does not classify the student. It compares his performance with a threshold of success established in advance*” (Meyer, 2005).

“Formative evaluation is the perfect form of formative evaluation”. It is metacognitive, self-regulating, it relies on the student’s responsibility in the act of learning. The central idea of the formative evaluation consists of the student’s understanding of the importance of representing the goals to be achieved, in the conviction that he himself (and only he) is capable of regulating his learning activity, of regulating/self-regulating/correcting this process.

The summative or “certifying” evaluation is presented in several scenarios, two of which are more important for our approach:

- 1) The evaluation is made at the end of a chapter, learning unit, lesson system, semester thesis, etc. In this hypothesis, the evaluative approach is summative, cumulative, but with strong formative valences. The evaluating teacher insists, in such a situation, on remedying the identified deficiencies and dysfunctions;
- 2) The final or balance assessment, carried out at the end of a school cycle, of a level of studies, etc. In this case,

the teacher can no longer intervene to regulate the educational process that has already produced its effects, but he can intervene to correct, regulate, and eliminate the dysfunctions found in the development of a new program. “From a modern perspective, summative assessment is determined by specific contexts, constructed by all actors – including students, who know the level and characteristics of expectations – and defined according to the criteria established together” (Cerghit, Radu).

Unity and complementarity of evaluation strategies.

The unit of initial–continuous evaluation–summative evaluation marks the transition from a traditional model centered on control, to a more efficient one, from the perspective of the ameliorative functions that the act of evaluation fulfills in the teaching activity, from the modern perspective. They are distinguished not so much by the nature of the measurement techniques used or by the criteria for assessing the results found, but, above all, by the way in which the evaluation actions are carried out in relation to the course of the process and by the functions they perform.

7.2 Graphic organizers as dynamic tools

In modern educational practice, the integration of graphic organizers into assessment is seen as a key strategy to overcome the drawbacks of stereotyped evaluation methods and to modernize the assessment process. Traditional one-size-fits-all tests often fail to capture the sophisticated skills and competencies required by today’s curricula. By contrast, graphic organizers (GOs) function as “versatile methodological tools that align evaluation with curriculum standards and competency-based learning goals, transforming assessment into a more authentic, participatory, and student-centered process” (Gavrilă, 2017). Used across all stages of school evaluation – initial, formative, and summative – GOs enhance both the pedagogical and evaluative functions of assessment by facilitating deeper understanding, active engagement, and meaningful feedback. In the initial evaluation, graphic organizers serve a clear diagnostic and prognostic role. The teacher begins the instructional cycle with an initial assessment of students’ prior knowledge and skill levels, often using GOs to map out what learners already know and to reveal conceptual gaps or misconceptions. This “cognitive diagnosis establishes an inventory of each student’s developmental level and baseline understanding, enabling educators to identify the causes of any discrepancies in prior knowledge” (Gavrilă, 2017).

Importantly, the initial evaluation also has a predictive (prognostic) function: the results gathered through graphic organizers inform decisions about how to design or adapt the upcoming teaching program and what remedial or enrichment strategies might be needed. In other words, the data from initial graphic-organizer assessments help teachers tailor their approach to the learners' needs from the outset, "ensuring that the planned curriculum is appropriate for the students' current level and learning style" (Gavrilă, 2017). Through this diagnostic mapping of knowledge, the initial evaluation fulfills both an orientation function (guiding the direction of teaching) and a prognostic function (forecasting students' potential development paths), setting a foundation for targeted instruction and subsequent formative assessments. During formative (continuous) evaluation, graphic organizers act as instruments of ongoing regulation, reflection, and feedback within the learning process. Formative evaluation is embedded in each learning activity; it occurs continuously and is centered on learning in progress rather than on final outcomes. By "integrating GOs into everyday classroom tasks, teachers obtain real-time insights into student understanding and skill development" (Gavrilă, 2017). This continuous monitoring has multiple pedagogical benefits. First, it allows immediate feedback and adjustment: as students fill in or construct graphic organizers, teachers can quickly identify strengths and weaknesses in their understanding and provide targeted feedback or hints for improvement.

The use of graphic organizers in formative assessment redefines the very architecture of the evaluative act, transforming it into an analytical and criterial process, as opposed to a purely normative or comparative one. As Gavrilă (2017) insightfully notes, "this approach ensures that assessment is anchored in clearly defined learning objectives and transparent criteria for success, enabling a structured alignment between what is taught, what is learned, and what is assessed." Unlike traditional summative assessments, which often serve merely to certify performance post-instruction, GO-based formative assessments integrate evaluation seamlessly within the teaching-learning dynamic. Thus, evaluation ceases to be a terminal event and becomes a continuous, recursive, and formative component of instructional design. In this paradigm, assessment is not an external judgment imposed upon the learner, but a dialogical toolone that guides, informs, and refines the learning trajectory in real time.

One of the most significant contributions of graphic organizers to formative assessment lies in their capacity to regulate and adapt instructional strategies. From the educator's perspective, the use of GOs generates a constant stream of formative data, offering granular insight into

students' cognitive processes. Misconceptions, ambiguities, and learning difficulties emerge visibly as students engage in the construction of visual schemas, enabling the teacher to respond with immediate pedagogical interventions. Gavrilă (2017) emphasizes, "this responsive recalibration of teaching – based on real-time diagnostic cues – functions as a self-regulation mechanism for the didactic act. Instruction becomes flexible, dynamically realigned to address student needs, and targeted to prevent learning breakdowns before they consolidate into persistent gaps." Graphic organizers play a transformative role in fostering student reflection, autonomy, and metacognitive development. As students externalize and visually organize their knowledge structures, they are not merely performing cognitive tasks, but also engaging in processes of introspection and self-evaluation. The visual mapping of content allows learners to perceive both the coherence and the fragmentation in their understanding – identifying conceptual linkages, missing elements, and hierarchical relationships. This promotes a form of embedded self-assessment, where the learner assumes an active role in diagnosing and correcting their own knowledge configurations. Gavrilă (2017) underscores the metacognitive dimension of such practices, highlighting how "the iterative process of constructing, revising, and elaborating graphic organizers stimulates skills of self-reflection and self-correction."

Furthermore, empirical evidence supports the assertion that continuous use of GOs facilitates the development of increasingly sophisticated levels of cognitive functioning. Students' progress from factual recall to conceptual integration, procedural application, and eventually to metacognitive regulation as they engage with organizers that demand analysis, synthesis, and evaluative reasoning. The versatility of GOs allows educators to design tasks that go beyond the simple retrieval of information. They can be structured to assess higher-order cognitive skills – such as critical thinking, comparative analysis, causal inference, categorization, hypothesis testing, and solution generation.

This pedagogical richness is further amplified by the wide array of graphic organizer formats available to teachers, including compare-and-contrast diagrams, sequencing charts, hierarchical maps, and networked concept webs. "Each format can be strategically chosen to assess not only the student's knowledge base but also their ability to demonstrate practical skills, workplace-related capacities, socio-emotional dispositions, and attitudinal engagement" (Gavrilă, 2017). The deployment of such diverse instruments broadens the evaluative horizon, allowing teachers to appraise students' full range of competencies

– cognitive, procedural, and affective. The formative use of graphic organizers is intrinsically aligned with the principles of competency-based education, which demand that learners demonstrate integrated mastery across knowledge domains, skill sets, and reflective dispositions. This form of assessment prioritizes depth over breadth, process over product, and development over ranking. Graphic organizers thus emerge not only as functional tools of classroom assessment but as epistemological instruments that reshape how knowledge is constructed, mediated, and evaluated within the educational ecosystem.

Traditionally, summative assessments have functioned as terminal evaluations, primarily concerned with certifying what students have learned through standardized tests, written exams, or final projects. However, this conventional model has faced increasing scrutiny for its tendency to privilege rote memorization and isolated recall over deep understanding and meaningful application. Moreover, high-stakes summative assessments often provoke performance anxiety and do not necessarily capture the multidimensional nature of student learning. In response to these limitations, the use of graphic organizers offers a compelling alternative that allows educators to assess not only what students know but also how they understand, organize, and interrelate knowledge across domains. As Gavrilă (2017) highlights, “the use of GOs in summative assessment addresses some of these issues by broadening the evidence of learning to include the structure and depth of students’ understanding.” Rather than focusing solely on discrete, fragmented responses to narrowly defined questions, GO-based summative tasks enable students to present a comprehensive picture of their knowledge structures. Through visual representations such as concept maps, comparative diagrams, and hierarchical schemas, learners can demonstrate mastery over both the content and the cognitive processes that underpin their understanding. This approach resonates with the principles of constructive alignment, wherein assessment tasks are explicitly matched to the learning outcomes and competencies delineated in the curriculum.

Moreover, summative assessment, when conceptualized in continuity with initial and formative evaluations, becomes a cumulative act of synthesis and reflection rather than a disjointed measurement at the end of instruction. Gavrilă (2017) rightly emphasizes that “summative evaluation is most effective when seen in close interdependence with the initial and formative evaluations, rather than as an isolated event.” Graphic organizers are ideally suited to reinforce this pedagogical coherence, as they can be used recursively throughout the learning cycle to scaffold understanding, track progress, and consolidate learning. By the time summative

evaluation occurs, students are already familiar with the logic and structure of GO-based activities, thus reducing test anxiety and supporting cognitive engagement.

In this regard, summative tasks involving graphic organizers may require students to synthesize major course concepts, illustrate conceptual relationships, or integrate divergent viewpoints into a coherent framework. For example, rather than responding to isolated multiple-choice questions, students might be tasked with constructing a concept map that links the theoretical paradigms explored during the course or with developing a comparative organizer that contrasts historical events, scientific processes, or literary themes. Such assessments not only test recall but require higher-order thinking skills, including analysis, integration, and abstraction. As Gavrilă (2017) observes, “the integration of graphic organizers into summative strategies allows for the verification and appreciation of a complex body of knowledge and skills according to the curriculum standards and the completed study programme.”

Importantly, this format also facilitates metacognitive engagement, as students must reflect on how different pieces of knowledge interconnect and how best to represent them. By doing so, they engage in self-regulatory behaviors that are essential for lifelong learning. Furthermore, this approach democratizes the evaluative experience, offering multiple entry points for learners with diverse cognitive and communicative styles. It promotes equity by valuing the organization and articulation of thought as much as the correctness of content.

From the educator’s standpoint, graphic organizers used in summative contexts serve a dual function: they not only provide evidence of student proficiency but also generate meaningful feedback that can inform pedagogical practice. Teachers gain insight into how students conceptualize and internalize information, which can guide future instructional decisions. As Gavrilă (2017) aptly notes, the summative graphic organizer serves as a “summative feedback tool that can inform not only final judgments of proficiency but also reflections on the effectiveness of instruction.” In this sense, summative evaluation becomes diagnostic as well, pointing to curricular gaps, instructional blind spots, or misunderstood concepts that may need to be revisited in future iterations of the course. The use of GOs in summative assessment supports a recursive learning model. The data collected at this stage can inform the next cycle of instruction, effectively serving as a bridge to subsequent initial evaluations. This continuous loop – initial, formative, summative, and again initial – reflects the cyclical nature of authentic learning and ensures that evaluation is integrated into the learning process rather than imposed upon it.

We can argue then that the incorporation of graphic organizers into summative evaluation not only reconfigures the mechanics of assessment but also repositions it philosophically. It transforms summative assessment from a terminal checkpoint into a competency-aligned, learner-centered, and diagnostically rich pedagogical event. By promoting coherent knowledge structures, encouraging reflective thinking, reducing test anxiety, and providing actionable feedback, GOs exemplify the very best practices of modern educational assessment. As Gavrilă (2017) succinctly asserts, such tools enable “a certification of learning where the outcome reflects a student’s ability to organize and use knowledge coherently, as advocated by modern pedagogical standards.”

8. Conclusions and recommendations

The research undertaken convincingly demonstrates the indispensable character of graphic organizers within modern educational processes, with a focus on reflective teaching, active learning, and formative assessment. The use of these tools contributes essentially to the development of students’ metacognitive skills, to the formation of analytical and synthetic thinking, as well as to the promotion of meaningful learning, anchored in reality and adapted to the specific needs of the primary cycle.

Against the background of a scientifically well-founded working methodology and a curriculum that allows flexibility and adaptability, graphic organizers are transformed from simple visual supports into real pedagogical resources with transformative potential. They favor deep understanding, knowledge relating, problem-solving orientation, and self-regulation of the learning process. In addition, it facilitates the transition from a content-centric education to a competence-centric one and the formation of an autonomous, responsible, and reflective graduate profile. From the teacher’s perspective, the systematic use of graphic organizers implies the acquisition of specific skills of design, integration, and contextual adaptation. In this regard, the research emphasizes the importance of continuous training as a catalyst for the paradigm shift in modern didactics.

Main recommendations:

1. Systematic integration of training in the use of graphic organizers in initial training programs and continues, through application modules, optional courses, or methodical workshops.
2. Elaboration of applied guides differentiated by disciplines, age levels, and types of lessons, which exemplify

concrete ways of construction, use, and evaluation through graphic organizers.

3. Creating flexible and transdisciplinary curricular contexts, which allow the natural application of these tools in integrated teaching activities, thematic projects, problem-based learning, or investigation.
4. Development of digital platforms and pedagogical resource banks, including graphic organizer models, tutorials for teachers, examples of good practice, and easily adaptable interactive tools.
5. Promoting a school culture of collaboration and formative assessment, through the exchange of experience between teachers, professional learning communities, and educational networks focused on innovation and pedagogical reflection.

Therefore, the implementation of graphic organizers in a coherent and strategic way can be a real catalyst for quality in primary education, with a positive impact on both the teaching process and learning outcomes.

The article “Carrying out school assessment from the perspective of learning through graphic organizers” brings a significant contribution to the renewal of teaching practices in primary education, offering an integrated vision between theory, research, and proposals for action. The rigorous conceptual foundation, the anchoring in the competence paradigm, and the detailed analysis of the graphic organizers outline a modern didactic model, centered on visual learning, formative assessment, and the development of student autonomy.

The results of the research validate the hypotheses formulated and highlight both the educational potential of graphic organizers and the barriers that prevent their large-scale capitalization. In this context, the article formulates a series of clear, sustainable, and applicable recommendations, with an impact on educational policies, teacher training, and curriculum design.

The article is part of the modernization of Romanian education and offers a valuable resource for theorists, practitioners, and decision-makers interested in optimizing teaching–learning–assessment processes.

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