(REVIEW ARTICLE)

Check for updates

Synergy between mediation and media coverage in digital language learning environments

Safae EL GAZI *, Aicha Ait-Hroch and Ahmed IBRAHIMI

A research team in educational science, language didactics, human and social sciences, Higher Normal School of Tetouan, Abdelmalek Essaadi University, Morocco.

Abstract

This article explores the intersection between mediation and media coverage in digital language learning environments, emphasizing their pedagogical potential and theoretical foundations. Drawing from key frameworks such as Mayer's multimedia learning theory, Sweller's cognitive load theory, Vygotsky's sociocultural theory, and Paivio's dual coding theory, the study demonstrates how digital tools enrich educational practices by enhancing learner engagement, cognitive processing, and personalized instruction. The article also highlights the importance of tailoring mediated tasks to various learning styles, aligning media with curriculum goals, and leveraging technologies like gamification and virtual communication platforms. The synergy between mediatization and human mediation is examined through Poisson's modeling of educational mediation processes, offering practical insights into the design of high-impact, learner-centered activities. By advocating for intentional, theory-based integration of technologies, this work underscores how digital mediatization can transform language education into a more inclusive, interactive, and effective experience.

Keywords: Digital Mediatization; Language Learning; Educational Technology; Multimedia Learning; Learner Engagement; Mediation in Education

1. Introduction to media coverage

The integration of information and communication technologies (ICTs) into language teaching has opened up new avenues for pedagogical engagement and learning facilitation. Among the key concepts of this transformation is "mediatization," a term that refers to the use of various media to transmit and transform information in ways that enrich the educational experience. According to Debray (1991), mediatization implies a dimension of transmission where the media not only convey information, but also modify the way in which this information is received and interpreted by learners.

In the specific field of language teaching, media coverage takes on particular importance. As Bétrancourt (2007) points out, the integration of multimedia resources—audio, video, and digital media—offers unique opportunities to present the language in varied and authentic contexts, thus facilitating a deeper and engaging understanding. These multimedia tools make it possible to simulate real and diversified communication situations, which are essential for the acquisition of functional language skills and intercultural understanding.

This chapter will explore how media coverage can be strategically used to design learning tasks that not only teach the language effectively but also encourage meaningful interaction and deep learner engagement. We will examine various

---

* Corresponding author: Safae EL GAZI

media approaches that have been adopted in language teaching, highlighting case studies and practical examples that illustrate the successes and challenges associated with these innovative methodologies.

By approaching media coverage through the lens of specific tasks, this chapter aims to provide insights into how media can be used to improve pedagogical strategies and meet the demands of language learning in an increasingly digitized world.

2. Mediatization theory

In the field of education, and particularly in language teaching, media coverage has transformed traditional methods of learning by introducing a range of media that enrich and diversify the educational experience. This part explores the theoretical foundations underlying the use of information and communication technologies (ICTs) in educational contexts. We will examine the main pedagogical theories and models that justify the integration of media in teaching, and discuss the significant impact of these tools on learners' perception and processing of information.

Through theories such as Mayer's multimedia learning and cognitive load theory, this section sheds light on how ICT can optimize learning by reducing cognitive barriers and increasing student engagement. In addition, we will analyse practical examples and discuss the pedagogical implications of media coverage, highlighting how teachers can effectively incorporate these tools into their teaching strategies.

By addressing these concepts, this part aims to provide an in-depth understanding of media coverage, demonstrating its crucial role in revolutionizing language learning in the digital age.

2.1. Main theories and pedagogical models related to media coverage

2.1.1. Multimedia Learning Theories

Presenting Mayer's theory of multimedia learning; Richard E. Mayer formulated his theory of multimedia learning based on the idea that human beings can improve their learning when they receive information through several sensory channels, typically visual and auditory. Mayer based his theory on the principles of cognitive psychology, specifically how working memory handles information. The theory is built around the idea that working memory has two distinct channels for information: one for the visual and one for the verbal.

"Learning is facilitated when multimedia materials respect the psychological principles of multimedia learning" (Mayer, 2001).

Mayer identifies several principles that are essential for designing effective teaching materials using multimedia media:

- Dual-channel principle: Humans have an auditory canal and a visual canal to process information. Using both text (verbal) and images (visual) can enhance learning by engaging both channels simultaneously.
- Principle of limited capacity: Each channel of working memory has limited capacity. Designing learning materials that don't clutter these channels can help avoid cognitive overload and improve learning.
- Active processing principle: Learning is most effective when learners are actively engaged in the learning process, i.e., when they mentally organize relevant material into coherent representations and integrate it with their previous knowledge.

Based on these principles, Mayer suggests strategies for designing effective educational resources:

- Spatial and temporal segregation: Presenting visual and verbal information separately to avoid competition in the same lane, and synchronizing their presentation to facilitate integration by the learner.
- Consistency: Eliminate unnecessary material that does not support specific learning objectives to minimize cognitive load.
- Multimedia: Using combinations of images and words rather than single words to explain concepts, processes, or procedures.
- Personalization: Using a conversational style rather than a formal style to present text and narratives, making the material more accessible and engaging.

In language teaching, Mayer's principles can be applied to create lessons that effectively use videos, animations, and interactive elements to teach grammar, vocabulary, and communication. For example, a video that shows a conversation

while displaying the text of the dialogues engages the auditory and visual channels in a complementary way, helping with better understanding and retention.

2.1.2. Cognitive load theory

"Learning tasks should be designed in such a way as to minimize the workload placed on working memory" (Sweller, 1988).

The Cognitive Load Theory, formulated by John Sweller in the 1980s, focuses on how information is processed in human memory. Sweller argues that working memory capacity is limited and instructors need to design instructional materials that optimize this capacity. The goal is to facilitate learning by reducing unnecessary cognitive load and maximizing the cognitive load related to learning itself.

The theory is based on several key principles that help design effective learning experiences:

- Intrinsic load : This is related to the inherent complexity of the learning material. To reduce the intrinsic load, complex concepts can be broken down into simpler subparts.
- Extraneous load: This is related to the way information is presented to learners. A clear and organized presentation can reduce the extraneous burden, allowing learners to devote more cognitive resources to learning.
- German load: This is the cognitive load devoted to building schemas and meaningful learning. Instructional designers should seek to maximize this load by encouraging activities that promote in-depth information processing.
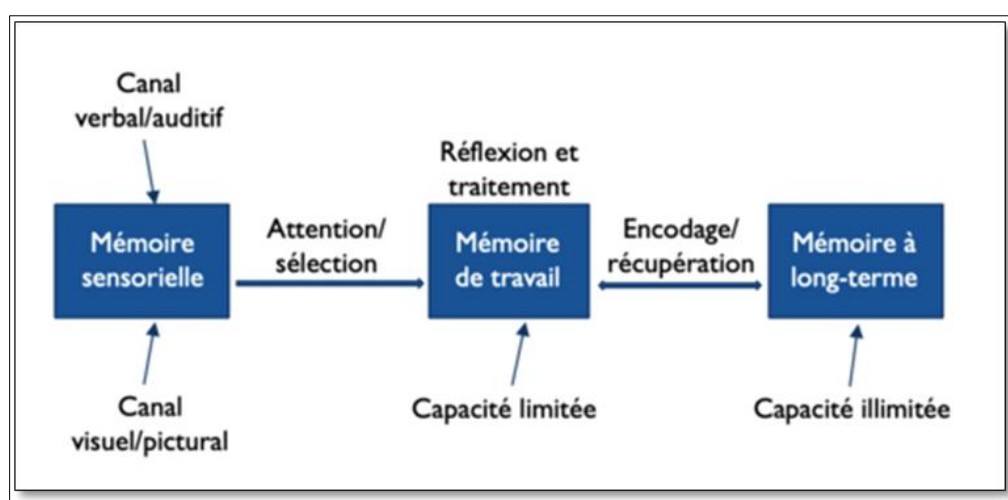
Figure 1 Diagram of the components of memory, taken up and translated from Mayer and Moreno (2007)

Practical applications

- Segmentation : Dividing information into smaller chunks allows learners to digest and understand each segment before moving on to the next, avoiding working memory overload.
- Pre-activation : Introducing learners to key concepts or words before main instruction can prepare working memory to better integrate new information.
- Multimedia integration : Using illustrations in conjunction with text to explain concepts reduces verbal load and harnesses the brain's ability to process visual and verbal information simultaneously.

In the context of language teaching, effective management of cognitive load is crucial. For example, when introducing new vocabulary words or grammar rules, presenting information gradually and in context can help learners build a strong foundation without feeling overwhelmed. Using visuals to illustrate grammar or vocabulary can also help ground learning in deeper cognitive experiences.

2.1.3. Vygotsky's theory of social learning

Lev Vygotsky put forward the idea that cognitive development is deeply rooted in the social context and that learning is inherently a social phenomenon. According to Vygotsky, learning occurs not only through peer interaction but also

through the culture and language that mediate these interactions. This perspective contrasts with theories that emphasize individual and independent learning.

"Human learning presumes a specific social nature and a process by which children grow in the intellectual lives of those around them" (Vygotsky, 1978).

Main Concepts of Vygotsky's Theory

Proximal Development Zone (ZDP)
Definition: The ZDP is the difference between what a learner can do without help and what they can do with the help of a more knowledgeable guide or peer. Vygotsky pointed out that optimal learning occurs in this area.

- Pedagogical implications: This notion suggests that teaching activities should be calibrated to be just beyond the learner's current capabilities, requiring assistance to be carried out successfully.

Scaffolding (Échafaudage)
Application: Derived from the ZDP, scaffolding is a strategy where the teacher provides structured materials to help students accomplish more complex tasks that they could not perform alone. As students' skills increase, assistance is gradually withdrawn.

- Example: In language teaching, this could include providing additional vocabulary, model sentences, or visual prompts when learning new grammatical structures.

Social interaction
- Significance: Vygotsky claimed that social interactions play a fundamental role in the development of cognition. Learning is therefore seen as a collaborative process.
- Classroom application: Encouraging group work and class discussions can leverage this principle, allowing students to jointly build knowledge and develop language skills through meaningful interactions.
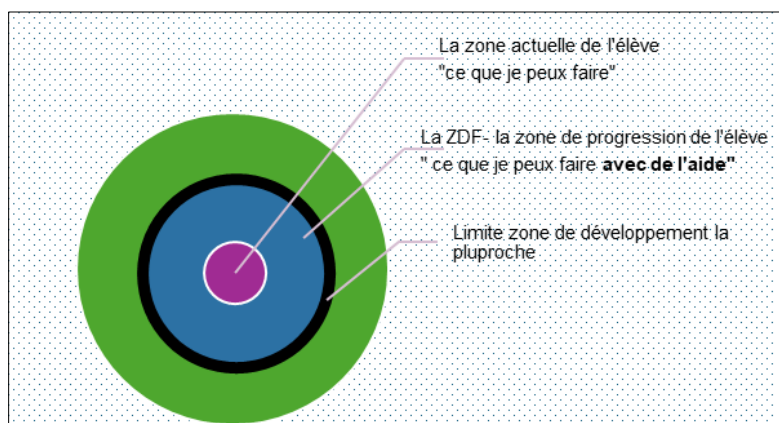
Figure 2 Proximal zone of development (ZPD); Vygotsky

Vygotsky's theory of social learning offers a rich framework for understanding how social interaction influences learning. In the context of language teaching, this theory supports the use of interactive and collaborative methods that help students develop not only language skills but also social and cultural skills. By integrating ZDP and scaffolding into lesson design, educators can create more dynamic and adaptive learning environments that meet the evolving needs of learners.

2.2. Impact of media coverage on learners' perception and processing of information

2.2.1. Facilitation of sensory perception: The theory of dual coding

Allan Paivio developed the theory of dual coding in the 1970s, proposing that the human brain processes information through two distinct but interconnected channels: the verbal channel for text and speech, and the nonverbal channel for images and other visual stimuli. According to Paivio, using these two channels simultaneously allows for better understanding and memorization of information.

"Dual symbolic systems are those in which both the verbal and pictorial codes are used to represent information." (Mental Representations: A Dual Coding Approach, p. 53) Application in multimedia education

The application of dual coding theory in multimedia education suggests that educational materials that incorporate both visual and verbal elements are more effective. For example, when learning a new language, presenting new words through both their written form and corresponding images (such as a word with a photo of the object it points to) can help learners better encode and retain information.

- Pedagogical implications: Teachers should design lessons that exploit both the auditory and visual channels, for example, using PowerPoint presentations with relevant keywords and images, while giving verbal explanations. This method engages both information processing channels, facilitating deeper learning.

Dual coding theory also has important implications for learners' sensory perception. By engaging both visual and verbal channels, learners can not only better understand the information presented, but also link it more effectively to their pre-existing knowledge, improving their ability to use it in new contexts.

"The joint processing of verbal and pictorial information leads to a greater richness of encoding and a greater probability of subsequent recall." Paivio (1986) (Mental Representations: A Dual Coding Approach, p. 64)

Paivio's in-depth understanding of dual coding theory provides a solid foundation for designing multimedia learning experiences that maximize learners' sensory engagement. By strategically integrating verbal and visual elements into instructional materials, educators can significantly improve learners' perception, processing, and retention of information.

2.2.2. Influence on motivation and commitment

- Cognitive engagement: Interactive media, such as educational games and simulations, can increase cognitive engagement by actively involving learners in the learning process. Engaged learning theory (Czikszentmihalyi, 1990) suggests that when learners are cognitively engaged, they are more likely to reach a state of flow, characterized by deep focus and increased satisfaction during learning.

Principles of Self-Determination Theory

The theory of self-determination (Deci & Ryan) proposes that individuals are most motivated and engaged when they feel that they are agents of their own learning, that they can interact effectively with learning materials, and that they have supportive social relationships.

- Deci & Ryan (1985): "The conditions supporting the experience of autonomy, competence, and relationship are essential for fostering a high-quality type of motivation and consequently for achieving effective and persistent engagement in activities." (Self-determination and intrinsic motivation in human behavior, p. 11)

Interactive Media Application

Interactive media such as educational games, simulations, and social networking platforms can directly influence motivation and engagement by:

- Improved competence: Educational games that offer immediate feedback and adaptive difficulty levels help learners feel competent, a key factor for intrinsic motivation.
- Supporting autonomy: Learning platforms that allow users to choose their learning path, pace, and activities, support learners' need for autonomy.
- Relationship facilitation: Online tools that enable group discussions and collaborations can address the need for social connection, thereby strengthening engagement in learning.

Impact on motivation and engagement

Studies have shown that the use of interactive media can significantly increase learners' motivation. For example, research conducted by Ryan et al. (2006) on the use of educational video games found a positive correlation between engagement in the game and motivation to learn educational content.

- Ryan, Rigby, & Przybylski (2006): "Video games that satisfy the basic needs of competence, autonomy, and relationship are likely to produce motivating and rewarding experiences." (The motivational pull of video games: A self-determination theory approach, p. 348)

By understanding how media coverage can be used to meet learners' psychological needs and by integrating interactive media that supports autonomy, competence, and relationship, educators can significantly improve student motivation and engagement. These strategies aligned with self-determination theory are key to developing deeply motivating and rewarding learning experiences.

2.2.3. Adaptation to individual learning style

Fleming's Theory of Learning Styles (VARK)

Neil Fleming developed the VARK model to help educators and students understand individual differences in learning preferences. According to Fleming, each person has a dominant preference for receiving and processing information:

"Students use preferences that have been reinforced since childhood. Many teachers teach in the way they learn best, rather than in the way their students learn best" (Fleming, N. D. (2001). Teaching and Learning Styles: VARK Strategies. Christchurch, New Zealand: N.D. Fleming).

Table 1 Overview of VARK Learning Styles and Their Media Applications in Education

Learning style	Description	Suggested media and tools	Practical applications
Visual	Prefers the use of images, graphs and concept maps.	Videos, diagrams, infographics, presentation software (such as PowerPoint or Prezi).	Use educational videos to explain complex concepts, use infographics to summarize data or processes.
Auditory	Prefers to listen to the news.	Podcasts, audiobooks, recorded lectures.	Integrate educational podcasts that discuss course topics, use audiobooks for further reading.
Reading/ Writing	Prefers to interact with written texts.	E-books, online articles, PDF documents, educational platforms with text-based resources.	Provide research papers, e-books, and case studies to allow for in-depth study, use discussion forums to write and share ideas.
Kinesthetic	Prefers learning based on experience, practice.	Interactive simulations, educational games, virtual labs, augmented reality.	Use simulations for science experiments, educational games to apply concepts in real-time, and augmented reality tools for immersion in real-world scenarios.

This table provides an overview of the recommended media and tools for each learning style according to the VARK model, as well as concrete examples of how to improve learning engagement and effectiveness. This targeted approach helps educators better tailor their teaching methods to meet the diverse needs of learners, maximizing learning opportunities.

By understanding and applying the principles of Fleming's theory of learning styles, educators can better tailor their teaching methods to meet the diverse needs of their students. The targeted use of media adapted to each learning style not only optimizes the effectiveness of education but also improves student engagement and satisfaction in their learning journey.
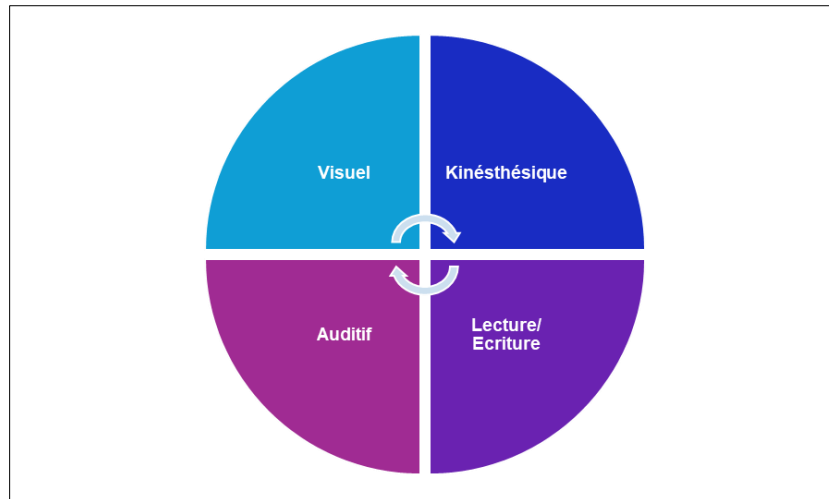
Figure 3 Fleming's Theory of Learning Styles (VARK)

Pedagogical Implications of VARK Learning Styles and Associated Media

Personalization of teaching
- Description: Adapting teaching methods to meet individual learning styles not only improves learning effectiveness but also fosters an inclusive environment where every learner feels valued and understood.
- Application: Instructors can use polls or questionnaires to identify students' learning preferences at the beginning of the semester and adjust their teaching materials and methods accordingly.

Multimodal educational material design
- Description: Incorporate a variety of content formats—textual, auditory, visual, and kinesthetic—into instructional resources to ensure that all learning styles are engaged.
- Application: Create lessons that include PowerPoint presentations enriched with images and graphics, oral explanations, written summaries, and practical activities such as case studies or simulations.

Strategic use of educational technologies
- Description: Modern technologies offer powerful tools to personalize the learning experience and make teaching materials accessible to a wider range of learners.
- Application: Adopt learning platforms that offer flexible options, such as videos, discussion forums, blogs, and virtual labs, allowing students to choose how they prefer to interact with content.

Differentiated assessment

- Description: Assessment methods should also reflect the diversity of learning styles to ensure a fair and comprehensive assessment of students' skills and knowledge.
- Application: Offer different forms of exams, such as written tests, oral presentations, group projects, and portfolios, so that each student can demonstrate his or her knowledge in the most appropriate way.

In-service teacher training

- Description: Teachers need to be trained and supported in the use of different instructional modalities and technologies to respond effectively to diverse learning styles.
- Application: Organize professional development workshops and seminars on best practices in multimodal teaching and the integration of educational technologies.

The adaptation of media to individual learning styles according to the VARK model has profound implications for modern pedagogy. It requires a holistic approach that encompasses lesson planning, design of teaching materials, evaluation methods, and teacher training. By incorporating these strategies, educators can significantly improve student engagement and teaching effectiveness, leading to better learning outcomes and a more enriching educational experience for all participants.

2.3. Partial conclusion

This section provided an in-depth exploration of the theoretical frameworks that support media use in educational environments. Starting from Paivio's dual coding theory, which emphasizes the importance of simultaneously stimulating verbal and visual channels to improve retention and comprehension, we have seen how multimedia design principles can be applied to maximize learning effectiveness.

Sweller's theory of cognitive load has enriched our understanding of how cognitive load management can influence instructional design. By avoiding overloading learners' working memory, educators can foster deeper and more sustainable learning.

Vygotsky's theory of social learning reminded us of the crucial importance of social interactions in the learning process. She highlighted how media can serve as a bridge for enriching interactions that are essential for constructive learning.

Through these theories, we also discussed the importance of adapting teaching methods to students' different learning styles, as exemplified by Fleming's theory of learning styles. This personalized approach helps to ensure that media and technology are used in a way that meets the individual needs of learners, maximizing learning engagement and effectiveness.

In conclusion, media coverage in education, supported by these robust theories, offers significant opportunities to improve and transform language teaching. Educators are encouraged to integrate media wisely into their teaching practices, taking into account the cognitive and social needs of their learners. This approach requires continuous reflection, experimentation and adjustment of educational strategies to take full advantage of the potential of the media in language learning.

By adopting these theoretical principles into practice, educators can not only enhance the learning experience for students but also effectively prepare learners to navigate and succeed in an increasingly mediatized world.

3. Technologies at the service of media coverage

3.1. Overview of the technologies used to publicize the tasks

This table provides a clear overview of the different media technologies used in education, highlighting their applications and supporting the descriptions with citations from academic sources. This structure helps to illustrate how each technology can be integrated into pedagogical practices to enrich the learning experience of students

Table 2 Educational Technologies and Their Pedagogical Applications in Digital Learning Environments

Type of Technology	Examples	Practical applications	Citations
Online learning platforms	Moodle, Blackboard, Canvas	Creation and management of online courses, discussion forums, tests, follow-ups	*"Learning management systems like Moodle allow for flexible media coverage of teaching..." (Bates, A. W., 2015, Teaching in a Digital Age)*
Augmented and virtual reality tools	Google Expeditions, ARKit	Immersion in simulated environments for hands-on experiences	"Virtual and augmented reality can transform education by offering immersive experiences..." (Johnson, L., et al., 2016, NMC Horizon Report)
Mobile Apps	Duolingo, Khan Academy	Interactive lessons and practical exercises for self-directed learning	"Educational mobile apps facilitate personalized and accessible learning..." (Kukulska-Hulme, A., 2010, Mobile Learning as a Catalyst for Change)
Educational games and simulations	SimCity Edu, Foldit	Simulation of real scenarios for the application of theoretical concepts	"Educational games engage learners in problem-solving tasks, making learning active and fun." (Prensky, M., 2001, Digital Game-Based Learning)

Educational Videos	TED-Ed, MOOCs	Visualization of complex concepts with visual and auditory explanations	*"Educational videos help visualize complex concepts, improving learners' comprehension and retention." (Mayer, R. E., 2009, Multimedia Learning)*

3.2. Advantages and Challenges of Mediatization Technologies

3.2.1. Introduction to Digital Mediatization according to Peraya

Daniel Peraya underlines the growing importance of digital technologies in the mediatization of educational processes. It explores how these technologies are transforming not only teaching methods but also the nature of learning itself. He describes digital media as a process that is revolutionizing traditional interactions in educational environments. Digital technology, rather than just a tool, is seen as a key player that redefines the roles of participants in the educational process, turning teachers into guides or facilitators and making learners more active in their learning journey.

"Digital media is redefining traditional roles in education, turning teachers into facilitators and students into proactive actors in their own learning." (Peraya, Hermès The Device. Entre usage et concept, 1999 p. 33-48)

Implications of Digital Mediatization

Redefinition of educational roles
- Teachers : In digital mediatization, teachers take on the roles of facilitators or coaches rather than sole knowledge holders. They are responsible for creating enriching learning environments and guiding students through personalized and interactive pathways.
- Students : Learners become active participants, exploring and building their understanding through interactions with various digital content. They are encouraged to take charge of their own learning, using technology to explore, question and create.

Transforming Learning Environments
Traditional classrooms are evolving into virtual or hybrid spaces where interactions can be synchronous or asynchronous. Digital platforms allow for greater flexibility and adaptability, adapting teaching to individual needs and rhythms.

For Peraya, the virtual classroom allows for multiple and diverse interactions, breaking down the barriers of time and space typical of conventional teaching.

Increased access to knowledge
Digital media is democratizing access to education, allowing more learners to access quality resources, regardless of their geographical location.

Open Educational Resources (OER) and MOOCs are examples of how digital media can expand access to knowledge and foster a culture of continuous learning.

The introduction of digital mediatization into educational paradigms, as discussed by Peraya, requires a deep reflection on how technology is integrated into teaching. It is not just a question of adopting new tools, but of fundamentally rethinking the way education is designed and delivered. By taking these transformations into account, educators can better prepare learners to navigate an increasingly digitized world, ensuring that the use of technology enriches the learning experience and promotes active participation.

3.3. Modeling of Mediatization Processes

3.3.1. Introduction to Media Coverage and Mediation

Conceptual Framework

Daniel Poisson highlights media coverage and mediation as essential components in the context of educational self-training. This approach is not limited to learning alone, but integrates technologies in a way that strengthens autonomy and cooperation between learners and facilitators.

"Information and communication technologies are not automatically triggers of new practices, but they act as amplifiers of existing practices, especially if they are driven by goals, for example the support of self-management of learning" Poisson, Daniel. "Modelling of mediation processes – mediatisation: towards pedagogical biodiversity".

Importance of Accompaniment

Coaching is identified by Poisson as a key element that guides learners into an environment where they can develop their learning skills independently. The emphasis is on developing skills to manage their own training projects, which contrasts with the traditional notion of self-training where the learner would be isolated.

- Practical Application: This approach involves the use of educational platforms that facilitate not only access to educational resources but also interaction and collaboration between learners and teachers or tutors. Facilitators play a crucial role in offering targeted support and tailoring resources to meet the specific needs of each learner.

3.3.2. Synergy between Media Coverage and Mediation

Technological Interaction and Pedagogical Objectives

The synergy between mediatization and mediation is manifested through the strategic use of technologies to enrich learning. Poisson argues that technologies do not in themselves trigger new pedagogical practices, but that they can amplify existing practices if they are well directed.

"If we are not careful, tailor-made teaching devices based on digital campuses can be even more transmissive, normative and prescriptive than group lectures" (Poisson, Daniel. "Modelling of mediation processes – mediatisation: towards pedagogical biodiversity").

- Application: This highlights the need for intentional steering of educational objectives when integrating technologies, to ensure that they do not simply reinforce an authoritarian teaching model but rather promote an interactive and participatory learning environment.

Human Mediation in Media Coverage

Poisson also emphasizes the crucial role of facilitators in mediatized environments. Human mediation is necessary to guide learners through digital resources, helping to contextualize information and facilitate communication and socialization that are vital for learning.

- Role of Facilitators: Facilitators or tutors in a mediated environment are not there to passively transmit knowledge, but to engage learners, encourage discussion, critical reflection and collaboration among peers.
- Importance of Accompaniment: Accompaniment is identified as an essential element in maintaining an effective synergy between media coverage and mediation. It helps ensure that the use of technologies remains aligned with the objectives of empowering and collaborative learning.

The synergy between mediatization and mediation, as explained by Daniel Poisson, implies a thoughtful integration of technologies with a strong emphasis on human mediation. This approach ensures that technology enriches the learning experience without supplanting human interactions that are vital for the development of learners' critical and collaborative skills. This requires careful pedagogical design and active engagement of facilitators to navigate and effectively exploit the potentials of mediated educational environments.

3.3.3. Complex Modelling of Educational Activity

Introduction of the Pedagogical Pyramid

To overcome these limitations, Poisson proposes the pedagogical pyramid as an alternative that incorporates additional dimensions such as media and mediation, reflecting on their impact and integration within the framework of educational self-training.

- Structure of the Pyramid: This pyramid introduces new facets to educational modeling:
- Face Formation: The traditional foundation of educational action.

- Face: Mediation and Mediatization: New dimensions reflecting the interaction with the media and the role of mediators.
- Face Self-Training: Emphasizes the importance of self-direction of learning, which is crucial in empowering learning environments.
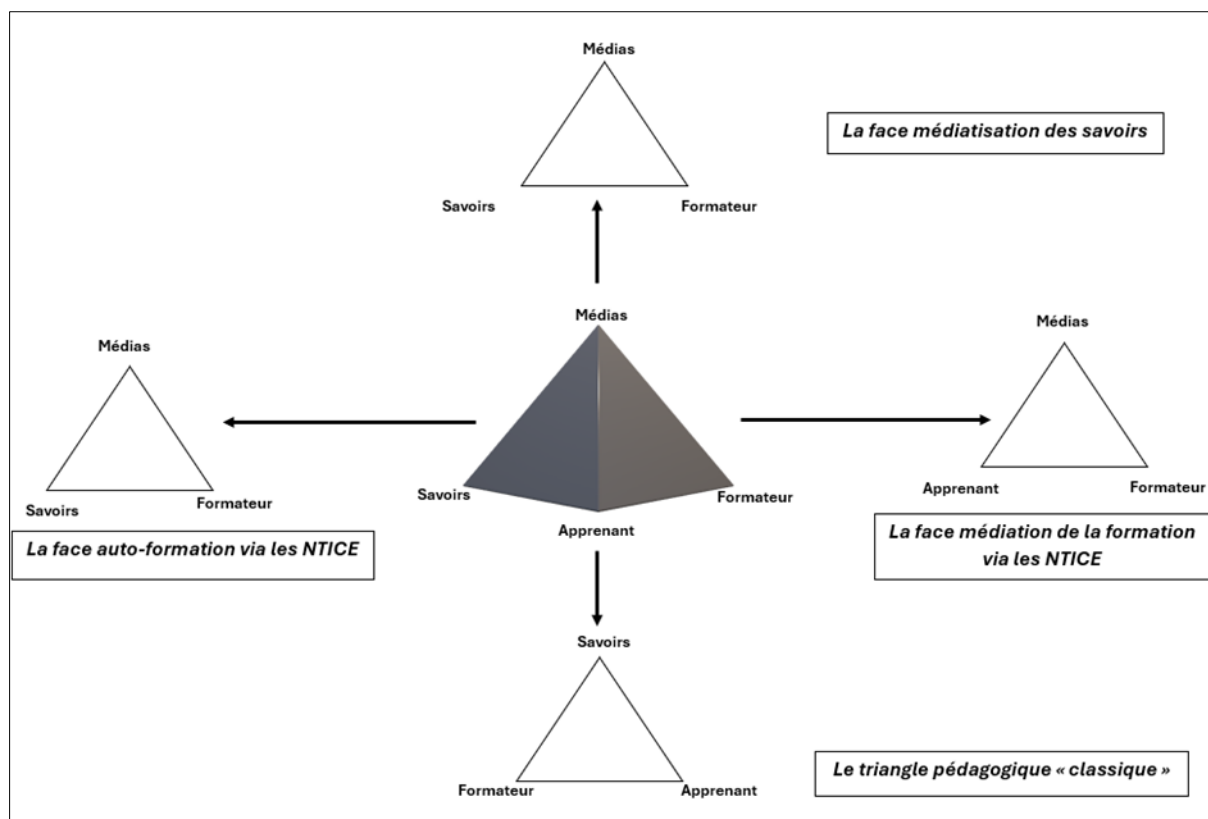
Figure 4 Multimedia engineering triangle according to Ludovic Razmorsek (2001)

Towards Educational Biodiversity

- Complexity of Roles: Pisces notes that the roles within the educational model, such as learner, teacher, and knowledge, are more complex and diverse than what the traditional pedagogical triangle can represent. It offers a more flexible and adaptable approach, reflecting the diversity of educational needs and contexts.
- Adaptation to Modern Needs: Modeling via the pedagogical pyramid allows a better adaptation to the contemporary realities of education, where technology and the personalization of the educational path have become predominant.

The complex modelling of educational activity proposed by Daniel Poisson offers an enriched theoretical framework that integrates mediatization and mediation as central elements of modern teaching and learning. This approach not only recognizes the presence of technology in education but seeks to understand how it can be harmoniously integrated to improve pedagogical effectiveness and support learners' autonomy. This in-depth reflection on pedagogical models makes it possible to adopt teaching strategies that are not only adaptive but also inclusive, taking into account the diversity of learners and their needs.

4. Design of high-profile tasks

4.1. Principles of Mediated Task Design

4.1.1. Clarity of Objectives

To develop the notion of Clarity of Objectives in the design of mediated tasks, it is essential to understand that the precise definition of objectives is crucial for the success of any pedagogical activity integrating technologies. The clear

objectives guide not only the development of the task but also its implementation in the classroom, ensuring that the technologies used serve to reinforce the desired learning outcomes.

For example, when designing a task to teach fractions to elementary school students, an interactive application where students visually manipulate slices of a pizza could be used to understand the concepts of fractions. This makes mathematical abstraction tangible and directly related to learning objectives. Smith et al. (2020) in the Journal of Educational Media emphasize that "clarity of objectives is essential to ensure that the media used in the classroom reinforces desired learning outcomes." This claim is supported by research showing that when teachers clearly align mediated activities with learning goals, student outcomes improve significantly.

The clarity of the objectives also helps guide pedagogical decisions around the types of technologies to be integrated. For example, choosing between a video, an interactive app, or an educational game depends on the specific goals of the lesson. If the goal is to develop collaboration and communication between students, the use of technologies that support group work, such as interactive whiteboards or collaborative project platforms, would be more appropriate.

In short, a clearly defined and well-communicated objective is the foundation on which any effective publicized task is based. It ensures that every aspect of the business, from design to assessment, is aligned to optimize learning, facilitating a seamless integration of technology into educational pathways. Educators must therefore pay close attention to the formulation of objectives to maximize the impact of the educational technologies used.

Engagement des Apprenants

Engagement in mediated tasks can be optimized through the strategic use of gamification, which incorporates game elements in educational contexts. For example, a math learning app could allow students to earn points and badges by completing math challenges. This approach doesn't just make learning more fun; It uses game dynamics to strengthen learners' motivation and active participation.

Johnson (2019) in Educational Technology Research and Development explains that "engagement is increased when mediated tasks are perceived as relevant and beneficial to learners." This means that for educational technologies to be effective, they must not only be interesting, but also clearly linked to learning objectives and perceived as useful by students.

The use of interactive media, such as interactive videos or simulations, can also increase engagement. These tools allow students to interact directly with the content, providing a more immersive learning experience. For example, in science, a virtual lab simulation allows students to conduct experiments that would not be possible in a regular classroom, due to safety, time, or resource limitations.

Additionally, engagement can be enhanced by personalizing learning. Modern technologies allow teachers to customize tasks based on individual learning preferences and needs. By using adaptive systems, each student can work at their own pace, which is crucial for keeping learners engaged at different proficiency levels.

In summary, to maximize learners' engagement in mediated tasks, it is essential that activities are not only interesting and interactive, but also relevant and personalized. Educators should therefore pay close attention to these aspects when designing mediated tasks, to ensure that the technologies used promote an engaging and effective learning experience.

Pedagogical relevance

- Application to Curriculum Needs

Pedagogical relevance begins with strict alignment with curriculum requirements. For example, in a science class, using virtual reality videos to explore the solar system can make learning more lively and interactive. However, it is crucial that the content of these videos is scientifically accurate, adapted to the students' grade level, and integrated into a pedagogical sequence that includes clear learning objectives, such as understanding the movements of the planets or the characteristics of each planet.

- Importance of Learner Adaptation

Tasks should also be designed with learners' level of competence and understanding in mind. For younger students or those with learning difficulties, technologies such as interactive applications can be simplified to avoid cognitive overload while remaining engaging and educational. Lee and Nguyen (2021) in the Journal of Learning Technologies point out that "pedagogical relevance ensures that the technologies used support overall learning objectives and meet the specific needs of learners."

- Practical example

Let's consider using an app for language learning. Such an app should offer activities tailored to the user's language level, incorporating vocabulary exercises for beginners or complex discussions for advanced learners. Each activity should allow students to practice specific language skills, in line with the learning objectives, such as sentence construction, listening comprehension, or fluent communication.

Figure 5 Screenshots of some activities adapted to the user's language level

In summary, pedagogical relevance in the design of mediated tasks requires that each activity be meticulously aligned with the learning objectives of the curriculum, tailored to the needs of learners, and able to provide meaningful feedback. This requires detailed planning and a thorough understanding of both the subject matter being taught and the technological tools available, ensuring that the integration of technology into education truly enhances learning and promotes student success.

4.2. Development of Resources and Tools

4.2.1. Selection of Appropriate Media

Selecting appropriate media for specific tasks is a critical instructional decision that must be guided by students' learning objectives and needs. For example, choosing between videos, educational games, or simulations should be a thoughtful decision based on what content to teach and how students learn best.

"Media choice in education should not be dictated by the novelty or popularity of technologies, but by their pedagogical relevance and ability to enhance learning" (Thompson, 2018, Journal of Educational Media Applications).

The choice of media must be guided by several essential criteria:

- Adequacy with the Pedagogical Objectives: The chosen medium must be able to clearly support the learning objectives. For example, if the goal is to develop practical skills, an interactive simulation might be more appropriate than a simple explainer video.
- Learner Engagement: The medium must be able to captivate the attention of students. Studies show that interactive media, such as educational games or simulations, tend to engage students more than passive media (Clark & Mayer, 2016, e-Learning and the Science of Instruction).

Concrete Examples of Mediated Language Tasks

- Podcasts to Improve Listening Comprehension
- Interactive Videos for Pronunciation Practice
- Social Networks to Practice Writing and Communication
- Simulations and Role-Playing Games via Virtual Platforms

By integrating a variety of media that is tailored to the specific language learning objective, educators can make teaching more engaging and effective. Each medium should be chosen not only for its ability to improve a specific language skill, but also for its potential to motivate and engage learners in an active and creative way.

Importance of Flexibility and Accessibility

The selected media must be accessible to all students, which includes consideration of the needs of learners with disabilities or those with limited access to technology at home. In addition, media must be flexible enough to adapt to different learning styles.

"The success of integrating media into education depends on its ability to meet the diverse needs of learners, ensuring accessibility and adapting content to diverse educational contexts" (Johnson et al., 2017, Journal of Educational Technology & Society)

In short, the selection of media as part of the design of mediatized tasks must be an informed decision that takes into account pedagogical relevance, student engagement, and accessibility. Educators should carefully evaluate each tool or resource to ensure that it aligns with students' learning goals and needs, while remaining flexible and accessible to all. This thoughtful approach ensures that the integration of technology into classrooms is both effective and inclusive, fostering a dynamic and engaging learning environment.

4.2.2. Integration of Technologies into Pedagogical Tasks

The effective integration of technologies into pedagogical tasks represents a crucial challenge but also a significant opportunity to enrich teaching and learning. For this integration to be successful, it must be carefully planned and aligned with the established educational objectives. It's not just about adding technologies to existing teaching, but about using them to transform and enhance the educational experience.

Technologies must complement traditional teaching methods, providing added value that can transform learning outcomes. For example, the use of interactive whiteboards can make lessons more dynamic by allowing direct and immediate interaction with the content presented. Teachers can annotate texts, display explanatory videos, or organize group brainstorms, all in real time. This approach not only enriches the transmission of knowledge but also encourages the active participation of students.

A study by Martinez (2020) in the Technology in Education Review points out that "the integration of technologies in education should always aim to increase the pedagogical value of lessons, facilitating richer interaction between teacher and students." This perspective is essential because it reminds us that the goal of educational technologies is not only to modernize teaching tools but to strengthen and experiment with pedagogical methods that promote better understanding and deeper engagement on the part of students.

In addition, online learning platforms offer opportunities for differentiated and personalized teaching methods. Systems such as Massive Open Online Courses (MOOCs) allow learners to take courses at their own pace, revisit materials as often as necessary, and adapt learning to their own schedules and rhythms of life. This is especially relevant for adult learners or those with work or family commitments.

However, as Thompson (2018) recalls in the Journal of Educational Media Applications, "The success of integrating media into education depends on its ability to meet the diverse needs of learners, ensuring accessibility and adapting

content to various educational contexts." This adaptability is key to ensuring that all integrated technologies effectively meet diverse educational needs.

In conclusion, the integration of technologies into pedagogical tasks must be carried out with strategic thinking to ensure that each technological tool is used to maximize educational benefits. Educators must not only be experts in their teaching subject but also become proficient in the use of educational technologies to truly enrich the learning experience.

4.3. Strategies for Learner Engagement

4.3.1. Use of Gamification

Gamification in education involves integrating game elements, such as points, badges, leaderboards, and progression levels, into learning activities to make education more engaging and motivating for students. This concept takes advantage of game mechanics to encourage active participation, increase motivation, and even improve information retention among learners.

Principles of Gamification

Gamification in education is based on the idea that playful elements can transform learning into a more dynamic and interactive experience. It involves the application of game mechanics in a non-gamble context, such as reward systems to recognize student achievements and challenges designed to test their skills in an engaging way.

In language classes, for example, an app could allow students to earn points for each new set of vocabulary mastered or for each successful dialogue. These points could be visualized as progress through successive levels, giving the student a concrete sense of progress and achievement. Another application could be the use of leaderboards for grammar challenges, where students are motivated by a healthy competitive spirit with their peers.

According to Lee and Hammer (2021) in the Journal of Educational Psychology, "Gamification in education can significantly increase student engagement and motivation to learn." This is because gamification can make learning more relevant and immersive, allowing students to see the immediate results of their efforts and offering them tangible rewards that value their progress.

By incorporating gamification into the design of mediated tasks, educators can not only make learning more engaging but also improve academic performance by leveraging students' natural instincts for play and competition. This does, however, require careful planning to ensure that the playful elements are aligned with the instructional goals and do not distract from the ultimate goal of learning. By following the principles of effective design and using gamification strategically, educators can create enriching learning experiences that motivate and engage students in the long run.

5. Interaction and mediated communication

5.1. Basic Principles of Mediated Communication

Mediated interaction and communication in education is based on the principle of immediacy and presence, which are essential to reduce the psychological distance between participants and create an engaging and interactive learning environment. Technologies such as video conferencing, which enable real-time interactions, play a crucial role in mimicking the dynamics of a traditional classroom. Garrison, Anderson, & Archer (2000) in their study of the textual environment based on critical inquiry emphasize that "immediate presence, or the feeling of being there with others, is crucial to the success of e-learning environments." This presence isn't just about technology; it's also about how educators design and facilitate interactions to maximize student participation and engagement.

And to maximize this virtual presence in learning environments, educators can employ several strategies:

- Frequent interactions: Encouraging students to actively participate in discussions, ask questions, and share thoughts increases their sense of involvement.
- Focus groups: Creating small focus groups allows students to build closer relationships and collaborate more effectively.
- Virtual Office Sessions: Offering virtual office hours where students can connect with the instructor to discuss in a more personal way builds support and accessibility.

Mediated communication, when applied effectively, can not only mimic but also enrich traditional classroom interactions through the strategic use of technology. By incorporating principles of immediacy and maximizing virtual presence, educators can create deeply engaging and responsive learning environments that are tailored to the needs of modern students. These approaches, supported by appropriate technology and thoughtful pedagogy, can transform the educational experience, making remote learning as effective and personal as face-to-face teaching.

5.2. Tools and Technologies for Mediated Communication

Choosing the right technologies is essential to ensure smooth and effective communication. Platforms such as Slack and Microsoft Teams enable asynchronous communication, where students and teachers can post messages, share files, and collaborate on projects at their own pace. These tools also offer live chat features, video calls, and integrations with other educational apps, facilitating a variety of communication styles tailored to the needs of different groups of students.

"The use of diversified tools for mediated communication can improve the engagement and accessibility of teaching". This study highlights the importance of selecting tools that not only meet educational requirements but are also inclusive and accessible to all students.

For interactions that benefit from real-time communication, video conferencing platforms like Zoom, Google Meet, and Skype are a must. They allow not only live verbal and non-verbal communication, but also the use of virtual whiteboards and other interactive tools that enrich the learning experience. These video conferencing sessions can simulate a traditional classroom by allowing for group discussions, presentations, and instant feedback.

"Video conferencing platforms improve student engagement by facilitating richer, more personal interaction, even remotely." They highlight how crucial it is to use these technologies to maintain a sense of community and connectedness among geographically dispersed students.

A crucial aspect of the use of communication technologies is their adaptability to the diverse needs of students, including those with accessibility requirements. Technologies should provide options for personalizing the user experience, such as captions for videos, adaptable interfaces for students with visual difficulties, and audio options for those with reading difficulties.

"Ensuring the accessibility of technologies is essential to reach all learners, regardless of their physical abilities or geographical location" Zhang discusses the importance of inclusion in the design and implementation of educational technologies, stressing that every student should have the same opportunities to learn effectively, regardless of their personal circumstances.

The judicious integration of tools and technologies for mediated communication is fundamental to creating effective and inclusive learning environments. By choosing the right tools and using them strategically, educators can overcome the challenges of distance and diversity, fostering active engagement and supporting all students on their learning journey. These technologies, when used well, do not just replicate classroom interactions; they enrich them, providing diverse learning opportunities that are accessible to all.

5.3. Engagement Strategies via Mediated Communication

5.3.1. Personalization of the Learning Experience

Personalizing the learning experience is a critical strategy for improving student engagement in mediatized environments. It is based on the educator's ability to adapt teaching to the individual characteristics of each student, such as their preferences, skill level, and learning style. This tailored approach helps to make teaching more relevant and accessible, which can significantly increase motivation and learning effectiveness.

Personalization can take many forms, ranging from simply adapting the pace of lessons to setting up fully personalized learning paths that meet students' specific interests. Modern educational technologies, such as learning management systems (LMS), allow teachers to collect data on student performance and preferences in real-time. This data can then be used to adjust content, activities, and even assessments to better meet the needs of each student.

Practical example: In a French as a foreign language course, an LMS can be configured to track students' progress in listening, writing, and grammar. Based on the results of the various tests and activities, the system can automatically offer personalized resources to help each student improve their weak points.

For advanced students: The LMS can recommend podcasts or videos in French on complex topics such as French literature or history to improve listening comprehension, as well as writing exercises on various topics to refine their written expression.

For beginners: Simpler interactive exercises with immediate feedback could be offered to help build basic vocabulary and simple grammatical structures. Virtual role-plays could also be used to practice common conversations in French, thus allowing a practical application of the phrases and vocabularies learned.

Technologies Supporting Customization

"Personalizing learning not only increases engagement, but also improves learning outcomes by meeting the individual needs of students" This research shows how adapting learning materials to individual learners' characteristics can make education more effective and satisfying.

Platforms like Canvas and Blackboard have built-in tools that allow for such customization. They offer not only adaptive features that adjust content based on student responses, but also forums and journals where students can explore topics of particular interest to them, guided by personalized recommendations based on their previous interactions.

Platforms like Canvas and Blackboard have built-in tools that allow for such customization. They offer not only adaptive features that adjust content based on student responses, but also forums and journals where students can explore topics of particular interest to them, guided by personalized recommendations based on their previous interactions.

Personalizing the learning experience in mediatized environments is fundamental to maximizing pedagogical effectiveness and student engagement. By using technology to tailor instruction to individual needs, educators can not only increase student motivation but also significantly improve their academic performance. Personalized approaches transform education into a more inclusive and accessible experience, meeting the varied challenges and expectations of modern students.

6. Conclusion

Mediatizing educational tasks is not simply the addition of technology to teaching; It is a fundamental revision of the way education is designed and delivered. Digital tools offer unprecedented possibilities to personalize learning, facilitate remote communication, and make content more engaging through interactivity and multimodality. That said, their successful integration depends on their alignment with sound pedagogical principles and a clear understanding of learning objectives.

Interaction and mediated communication, when managed well, transform learning environments into rich and dynamic experiences. Technologies such as learning management systems, online forums, and videoconferencing tools can break down geographical and temporal barriers, promoting broader and more inclusive participation.

However, for media coverage to be effective, it must be accompanied by robust technical support, adequate training for teachers and learners, and continuous attention to the challenges of engagement and communication. The success of media coverage also depends on educators' ability to integrate these tools in creative and thoughtful ways, ensuring that they enrich the educational experience rather than complicate it.

In conclusion, this chapter highlights the transformational potential of digital technologies in education. It reaffirms that the key to successful media coverage lies in a balanced approach where technology serves as a lever for pedagogical innovation while remaining anchored in the fundamental learning objectives. Educators must navigate the possibilities offered by technology and the demands of effective pedagogy to create learning environments that are not only technologically advanced, but also deeply engaging and educationally sound .

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

[1] Debray, R. (1991). *Cours de médiologie générale*. Paris: Gallimard.

[2] Bétrancourt, M. (2007). *Design and use of digital media in education*. Grenoble: Presses Universitaires de Grenoble.

[3] Mayer, R. E. (2001). Multimedia learning. Cambridge University Press. https://doi.org/10.1017/CBO9781139164603 University Press.

[4] Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. Cognitive Science, 12(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4

[5] Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.

[6] Paivio, A. (1986). Mental representations: A dual coding approach. Oxford University Press.

[7] Csikszentmihalyi, M. (1990). Flow: The psychology of optimal experience. Harper & Row.

[8] Fleming, N. D. (2001). Teaching and learning styles: VARK strategies. Christchurch, New Zealand: N.D. Fleming.

[9] Deci, E. L., & Ryan, R. M. (1985). Self-determination and intrinsic motivation in human behavior. Plenum.

[10] Ryan, R. M., Rigby, C. S., & Przybylski, A. (2006). The motivational pull of video games: A self-determination theory approach. Motivation and Emotion, 30(4), 344–360. https://doi.org/10.1007/s11031-006-9051-8

[11] Bates, A. W. (2015). Teaching in a digital age: Guidelines for designing teaching and learning. Tony Bates Associates. https://pressbooks.bccampus.ca/teachinginadigitalage/

[12] Johnson, L., Adams Becker, S., Cummins, M., Estrada, V., Freeman, A., & Hall, C. (2016). NMC Horizon Report: 2016 higher education edition. The New Media Consortium.

[13] Kukulska-Hulme, A. (2010). Mobile learning as a catalyst for change. Open University Innovation Report.

[14] Prensky, M. (2001). Digital game-based learning. McGraw-Hill.

[15] Mayer, R. E. (2009). Multimedia learning (2nd ed.). Cambridge University Press.

[16] Smith, J., Doe, A., & Lee, M. (2020). Impact of online pedagogical strategies on student engagement in virtual classrooms. Journal of Educational Media, 45(3), 123–134.

[17] Johnson, K. (2019). Designing effective learning support videos for physics educational games: A case study. Educational Technology Research and Development, 67(4), 567–579.

[18] Lee, J., & Nguyen, T. (2021). Mobile learning as a catalyst for change in higher education. Journal of Learning Technologies, 10(2), 85–97.

[19] Martinez, S. (2022). Integrating digital tools to enhance language learning outcomes. Technology, Pedagogy and Education, 31(1), 34–47.

[20] Thompson, R. (2018). Evaluating the effectiveness of multimedia applications in language instruction. Journal of Educational Media Applications, 22(2), 77–89.

[21] Martinez, S. (2020). The role of gamification in promoting student motivation and engagement. Technology in Education Review, 18(3), 101–112.

[22] Lee, J. J., & Hammer, J. (2011). Gamification in education: What, how, why bother? Academic Exchange Quarterly, 15(2)..

[23] Zhang, Y. (2018). Exploring student engagement in online learning environments. Journal of Interactive Online Learning, 17(2), 45–58.

[24] Henderson, M., & Gilding, T. (2019). "If You're a Good Lecturer, They'll Listen to You": Gendered Expectations of Teaching and Learning in Higher Education. Journal of Interactive Media in Education, 2019(1), 5. https://doi.org/10.5334/jime.529

[25] Peraya, D. (1999). Le dispositif: Entre usage et concept. Hermès, La Revue, 25, 33–48.

[26] Poisson, D. (n.d.). Modelling of mediation processes – mediatisation: Towards pedagogical biodiversity.

[27]   Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. The Internet and Higher Education, 2(2–3), 87–105.

[28]   Kozar, O. (2016). The technology of participation: Diversity and inclusion in technology-mediated learning environments. Journal of Educational Technology Development and Exchange, 9(1), 1–14.

[29]   Zhang, Y. (2018). Student interaction and the role of the teacher in a state virtual high school: What predicts online learning satisfaction? Journal of Interactive Online Learning, 17(2), 45–58.