The Role of Multimedia Teaching - Learning Strategies in the Development of Competencies of Primary School Pupils

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Abstract: In these times of educational needs and requirements, and especially after the Covid pandemics, where both teachers and students were forced to adapt to new educational situations, the idea of multimedia took new meanings. In the present brief study, I would like to highlight the main definitions that stand behind the concept of media and multimedia, in order to get a better understanding. Then, I would like to present the main advantages and disadvantages of the use of multimedia teaching – learning strategies in education. Also, I present some curiosities about the main downloaded tools used in education and belonging to multimedia area, and also some practical ideas about how to introduce them into the daily schedule of pupils, in order to get better results in education. The main objective of the study is to see the real situation of multimedia strategy use in Romanian primary schools, mainly those from Arad County. I finish my study by presenting and describing some of the best practices in terms of multimedia use in education and how they manage to develop some competencies of primary school pupils. The preliminary results show that multimedia tools used in primary schools from Arad County, develop several competencies, such as transversal and key competences. Suggestions are that multimedia strategies should be used weekly in the teaching learning routine of pupils in order to get better outcomes.

Key words: Media, Multimedia, Strategies, Competencies, Primary School.

Introduction

Media refers to the various means of communication that are used to convey information, news, or entertainment to a large audience. It includes traditional forms of media such as newspapers, magazines, radio, and television, as well as newer forms of media such as social media, online blogs, podcasts, and streaming services. Media plays a significant role in shaping public opinion and influencing the way people think and behave. It can be used to educate, inform, and entertain, but it can also be used to manipulate and spread misinformation. The impact of media on society has increased significantly in recent years due to the widespread availability of technology and the internet. The rise of social media platforms has enabled individuals to become producers of content, giving rise to citizen journalism and alternative forms of media. Media organizations are responsible for ensuring that their content is accurate and unbiased, but with the rise of fake news and misinformation, it has become increasingly important for individuals to be media literate and to critically evaluate the information that they consume. (Leacock & Nesbit, 2007, Torkos & Egerău, 2020)

Multimedia refers to the use of multiple forms of media (such as text, graphics, audio, video, and animation) to convey information or to entertain people. Multimedia can be presented in various ways, such as through websites, mobile apps, video games, digital art installations, interactive kiosks, and educational software. Multimedia is an important part of our daily lives, as it allows us to communicate and consume information in a more engaging and interactive way. For example, a news article with images and videos is more compelling than a plain text article. A multimedia presentation can also help to explain complex ideas more clearly and effectively than a written document. The creation of multimedia content requires a combination of technical skills and creativity. Multimedia designers and developers use various software tools and programming languages to create, edit, and publish multimedia content. They also need to have a good understanding of user experience (UX) design and user interface (UI) design to ensure that the multimedia content is easy to use and engaging for the target audience. (Mocanu & Stoica, 2016)

Romania has been making efforts to integrate multimedia and technology into its educational system to enhance teaching and learning experiences. Here are some key points regarding the use of multimedia in Romanian education:

- Digital Curriculum: The Romanian Ministry of Education has been actively working on implementing a digital curriculum framework, which includes the use of multimedia resources. The aim is to improve access to educational content and provide interactive materials for teachers and students.

- E-learning Platforms: Several e-learning platforms have been developed and implemented in Romanian schools, providing access to digital textbooks, educational resources, and interactive materials. These platforms are designed to support both in-classroom teaching and remote learning.

- Digital Tools and Resources: Schools in Romania have been encouraged to integrate multimedia tools and resources into their teaching practices. This includes the use of interactive whiteboards, educational software, online educational games, and multimedia presentations to enhance student engagement and understanding.

- Digital Competence: The Romanian educational system recognizes the importance of developing digital skills among students. Efforts have been made to integrate digital competence into the curriculum, ensuring that students are equipped with the necessary skills to effectively use multimedia tools and technology.

- Infrastructure and Connectivity: The Romanian government has been investing in improving infrastructure and connectivity in schools to support the use of multimedia. This includes providing access to high-speed internet, computers, and other digital devices to facilitate multimedia-based learning.

- Teacher Training: Teacher professional development programs have been implemented to enhance educators' digital literacy and their ability to effectively integrate multimedia into their teaching practice.

- Training sessions and workshops are conducted to familiarize teachers with new technologies and pedagogical approaches.

It's important to note that the extent of multimedia integration may vary across different schools and regions in Romania. Some schools may have more advanced multimedia infrastructure and resources, while others may have limited access. Additionally, the specific initiatives and policies in place may have evolved since my last update. Therefore, for the most accurate and up-to-date information, it is recommended to refer to official government sources or educational institutions in Romania.

Theoretical bases

Multimedia plays an important role in education by providing a variety of visual and auditory aids that can help students to better understand and retain information. Some specific benefits of multimedia in education include:

- Improved engagement: Multimedia can capture students' attention and motivate them to participate in the learning process. By presenting information in a variety of formats, including images, videos, animations, and audio, students are more likely to remain engaged and interested in the subject matter.

- Enhanced learning outcomes: Studies have shown that multimedia can improve learning outcomes by helping students to retain information more effectively. When information is presented in multiple formats, it can help students to make connections between concepts and reinforce their understanding of key ideas. (O'Hara & Pritchard, 2013)

- Increased accessibility: Multimedia can be used to make learning more accessible to students with different learning styles and abilities. For example, students who are visual learners may benefit from diagrams and images, while students who are auditory learners may prefer audio recordings or podcasts.

- Interactive learning experiences: Multimedia can be used to create interactive learning experiences that allow students to explore and interact with concepts in a more immersive way. This can include virtual simulations, games, and other interactive multimedia tools.

Overall, multimedia can be a powerful tool for enhancing the learning experience and improving educational outcomes for students of all ages and abilities. (Zhang et al, 2006)

While multimedia has many advantages in education, there are also some potential disadvantages to consider, including:

- Technical issues: Multimedia can be complex and may require specialized equipment and software to create and use. Technical issues, such as connectivity problems, compatibility issues, or hardware failures, can interrupt learning and frustrate both students and teachers.

- Distractions: While multimedia can enhance engagement and attention, it can also be a source of distraction for students. For example, students may be tempted to use multimedia devices for non-educational purposes, such as playing games or browsing social media.

- Overreliance on technology: Multimedia can become a crutch for teachers and students, leading to an overreliance on technology and a decrease in critical thinking and problem-solving skills. This can also create a digital divide between students who have and do not have access to technology.

- Lack of personalization: Multimedia can be a one-size-fits-all approach to education, which may not meet the needs of individual students. Students may have different learning styles, interests, and abilities, and multimedia may not always be tailored to their specific needs.

- Cost: The cost of multimedia equipment, software, and licensing can be prohibitive for some schools and students. This can limit access to multimedia tools and create inequalities in education.

Overall, while multimedia has many benefits in education, it is important to be aware of the potential disadvantages and to address them proactively. By doing so, educators can ensure that multimedia is used in a way that maximizes its benefits and minimizes its drawbacks.

Multimedia instruments and resources

- There are many multimedia apps and instruments used in education, and the most used ones can vary depending on the specific educational context and goals. Some of the most commonly used multimedia apps and instruments in education include:Presentation software: Presentation software such as Microsoft PowerPoint, Google Slides, or Prezi can be used to create multimedia presentations that combine text, images, videos, and other media to deliver information to students.

- Video conferencing tools: Video conferencing tools such as Zoom, Google Meet, or Microsoft Teams can be used to facilitate remote learning, connect with guest speakers, or collaborate with other classrooms around the world.

- Educational videos: educational videos from platforms such as YouTube or Khan Academy can provide students with visual and auditory aids to enhance learning experiences.

- Interactive whiteboards: Interactive whiteboards such as SMARTBoard or Promethean can be used to create interactive learning experiences that allow students to interact with multimedia content in real-time.

- Multimedia authoring software: Multimedia authoring software such as Adobe Creative Suite, iMovie, or Audacity can be used to create multimedia projects such as videos, podcasts, or animations.Virtual reality: Virtual reality tools such as Google Expeditions or Nearpod VR can be used to provide students with immersive and interactive learning experiences, such as exploring historical sites or scientific phenomena.

- The most used multimedia apps and instruments in education are those that are accessible, easy to use, and provide students with engaging and interactive learning experiences.

Collaborative multimedia tools

- Collaboration is an important aspect of education, and there are many collaborative instruments that are commonly used in education. (Laurian-Fitzgerald, 2016) Some of the most used collaborative instruments in education include:

- Learning management systems (LMS): LMS such as Moodle, Blackboard, or Canvas provide a centralized platform for teachers and students to share content, communicate, and collaborate on assignments and projects.

• Online productivity tools: Online productivity tools such as Google Drive, Microsoft Office 365, or Dropbox allow students to collaborate on documents, spreadsheets, and presentations in real-time.

• Social media: Social media platforms such as Twitter, Instagram, or Facebook can be used to facilitate communication, collaboration, and community building among students and teachers.

• Online discussion forums: Online discussion forums such as Reddit, Quora, or Stack Exchange can be used to encourage student participation and collaboration by providing a platform for students to ask questions, share ideas, and collaborate on projects.

• Video conferencing tools: Video conferencing tools such as Zoom, Google Meet, or Microsoft Teams can be used to facilitate real-time collaboration and communication between students and teachers.

• Collaborative writing platforms: Collaborative writing platforms such as Google Docs, Microsoft Word Online, or Zoho Writer allow multiple users to work on the same document simultaneously, making it easy for students to collaborate on writing assignments.

• The most used collaborative instruments in education are those that are accessible, easy to use, and provide students with a platform to communicate, collaborate, and share their ideas and work.

In 2018-2019 years, mainly in the US, the most downloaded apps in education, as it was analyzed in three famous searching engines, are presented in the following image:

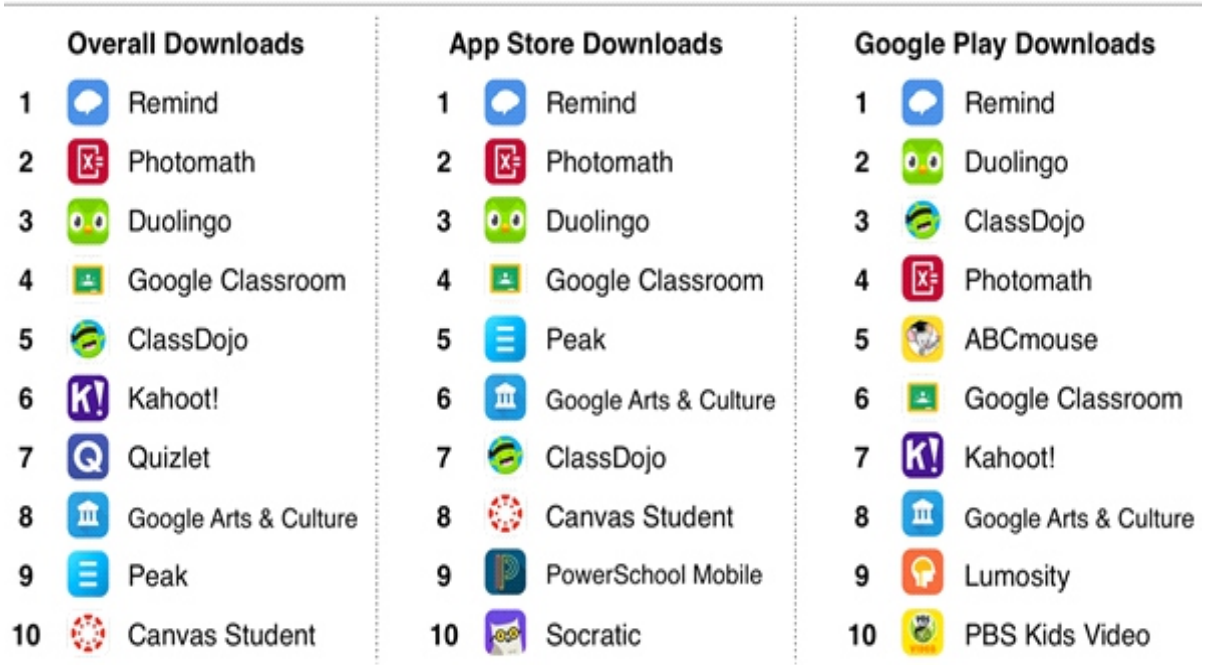

Figure1. The most downloaded apps in education

Educational video games

Video games are increasingly being used in education to enhance learning experiences and engage students. Here are some ways in which video games are changing education:

- Increased engagement: Video games are designed to be engaging and immersive, and they can provide students with a sense of accomplishment and progress as they work through challenges and obstacles.

- Improved learning outcomes: Video games can provide opportunities for students to practice skills and knowledge in a safe and interactive environment, leading to improved learning outcomes and retention.

- Personalized learning: Video games can be designed to adapt to the individual needs and abilities of students, providing personalized learning experiences that cater to their specific learning styles and interests.

- Collaborative learning: Many video games incorporate multiplayer modes or online communities, which can provide opportunities for collaborative learning and social interaction.

- Gamification: Video games can be used to gamify traditional learning activities, such as quizzes or assessments, making them more engaging and motivating for students.

- Real-world applications: Video games can be designed to simulate real-world scenarios, providing students with opportunities to apply their knowledge and skills in practical contexts.

- Video games have the potential to revolutionize education by providing engaging, interactive, and personalized learning experiences that can improve learning outcomes and prepare students for the challenges of the future. However, it is important to use video games in a thoughtful and intentional way, and to ensure that they are integrated into the curriculum in a way that supports educational goals and objectives. (Stoica & Chifu, 2015)

Social media and its role in education:

Social media has the potential to be a valuable tool in education, providing opportunities for communication, collaboration, and community building among students and teachers.

Here are some ways in which social media can be used in education:

However, it is important to use social media in a responsible and ethical way, and to be aware of the potential risks and challenges associated with social media use in education. For example, it is important to protect student privacy, ensure that social media use is appropriate for the age and developmental level of the students, and to promote responsible digital citizenship and online safety. (Clark, 2016)

Competence development through multimedia strategies in primary school

Objective of the study

The main objective of the study is to find out to what extent multimedia teaching learning strategies are used in primary schools from Romania.

Research methodology

The main method used in the present brief research was observation and data collection, and the main instrument used was observation

sheet, that contained 10 main items that were observed during the research:

Integration of Multimedia: How multimedia is integrated into the curriculum and teaching practices. Look for the use of digital tools, interactive software, educational apps, or online resources.

- Accessibility: Assess the accessibility of multimedia resources for both teachers and students. Consider factors such as availability of devices, internet connectivity, and the usability of multimedia materials.

- Content Variety: The diversity and quality of multimedia content used in primary school classrooms. This can include videos, animations, interactive presentations, audio recordings, or digital textbooks.

- Student Engagement: How multimedia strategies contribute to student engagement. Pay attention to student reactions, level of participation, and overall interest in the learning activities involving multimedia.

- Learning Outcomes: The impact of multimedia on learning outcomes. Look for evidence of improved understanding, knowledge retention, and skill development among students.

- Teacher Support: Evaluation of the level of support provided to teachers in implementing multimedia strategies. This can include professional development opportunities, training workshops, or access to technical assistance.

- Collaborative Learning: How multimedia is used to facilitate collaborative learning among students. Look for group activities, interactive exercises, or multimedia projects that promote teamwork and cooperation.

- Differentiated Instruction: How multimedia strategies are used to cater to diverse learning needs. Look for personalized learning approaches, adaptive technologies, or multimedia resources that support individualized instruction.

- Assessment Methods: How multimedia is integrated into assessment practices. Look for multimedia-based assessments such as digital portfolios, multimedia presentations, or online quizzes that provide a more comprehensive evaluation of student learning.

- Teacher-Student Interaction: The dynamics between teachers and students during multimedia-based activities. Assess how multimedia facilitates. teacher-student interaction, feedback, and dialogue within the classroom.

Multimedia can play an important role in developing competencies in primary school students. Here are some ways in which multimedia can be used to support competence development in primary school:

Digital literacy: Multimedia can be used to develop digital literacy skills in primary school students, including skills such as searching for information, evaluating sources, and using digital tools for communication and collaboration.

- Critical thinking: Multimedia can be used to promote critical thinking skills in primary school students by presenting them with complex and engaging content that requires analysis, evaluation, and synthesis

- Creativity: Multimedia can be used to foster creativity and innovation in primary school

students by providing opportunities for them to create their own multimedia content, such as videos, podcasts, or digital stories.

- Communication: Multimedia can be used to develop communication skills in primary school students by providing opportunities for them to share their ideas and perspectives with others through multimedia presentations, collaborative projects, or online discussions.

- Multicultural competence: Multimedia can be used to promote multicultural competence in primary school students by exposing them to diverse cultures, perspectives, and experiences through multimedia content. (Radu & Cristea, 2014)

Multimedia can provide a dynamic and engaging learning environment for primary school students, promoting the development of key competencies that are essential for success in the 21st century. However, it is important to use multimedia in a thoughtful and intentional way, ensuring that it is integrated into the curriculum in a way that supports educational goals and objectives.

Data Analysis

We have conducted observations in primary school classrooms to assess the integration of multimedia strategies. We have taken note of how multimedia is used, the level of student engagement, and any challenges or successes observed. Also, we have examined primary school curriculum documents to identify any explicit references to the integration of multimedia strategies and analyzed how multimedia is included in the curriculum and its alignment with learning objectives. We have compared the use of multimedia strategies across different primary schools in Romania and identified variations in the availability of resources, approaches to integration, and perceived effectiveness among schools.

Conclusions

Multimedia is often integrated into the curriculum in Arad County schools to enhance teaching and learning experiences. It is used as a supplement to traditional teaching methods and materials, providing interactive and engaging resources for students. Arad County schools may have varying levels of access to multimedia resources. Some schools might have well-equipped computer labs, interactive whiteboards, and access to a wide range of digital content, while others might have more limited resources. Multimedia is used to create interactive learning experiences for students. This includes educational videos, animations, digital simulations, and online resources that encourage active student participation and engagement. Multimedia allows for differentiated instruction, catering to the diverse needs of students in Arad County schools. Teachers can utilize multimedia tools to provide personalized learning experiences, adapt content to various learning styles, and offer additional support or challenges as needed. The use of multimedia in Arad County schools supports the development of digital competence among students. It helps them become familiar with digital tools, digital literacy, and responsible online behavior. Teachers in Arad County receive professional development opportunities to enhance their digital literacy and integrate multimedia effectively. Training sessions, workshops, and collaboration with colleagues can support teachers in utilizing multimedia tools and

resources in their teaching practices. The use of multimedia in education is continuously evolving. Arad County schools need to keep up with technological advancements, adapt teaching practices accordingly, and provide ongoing support to teachers to ensure effective integration of multimedia.

Multimedia strategies have become increasingly important in schools, as they offer a dynamic and engaging way to deliver educational content that can enhance learning experiences for students. Multimedia strategies offer a powerful tool for schools to enhance learning experiences for students, promote personalized learning, and develop essential skills for success in the modern workforce. The COVID-19 pandemic has greatly impacted the use of multimedia in various ways. Here are some ways in which multimedia has been affected by COVID-19. The COVID-19 pandemic has had a significant impact on the use of multimedia, both in terms of increased demand and disruptions in production. However, it has also created new opportunities for innovation and the use of multimedia tools for remote work and communication. By embracing multimedia strategies in schools, educators can create a dynamic and engaging learning environment that supports the educational goals and objectives of students. Multimedia is widely used in Romania, both in education and in various other fields. In the educational area, even though, in the primary school curricula there are no specific words or expressions which show its presence, in practice, in Romanian schools, multimedia is used extensively to support learning and teaching. Multimedia resources such as videos, animations, and interactive simulations are used to present educational content in an engaging and interactive way. (Danciu, 2016, Rad et al, 2022, Truca, 2015, Torkos & Breaz, 2022, Vancu & Egerău, 2022)

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