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THE 21ST CENTURY CLASSROOM: THE IMPERATIVE FOR EDUCATIONAL TECHNOLOGY IN SOCIAL STUDIES

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Abstract

The current educational landscape, commonly referred to as the "21st century classroom," has witnessed the integration of technology, enabling a novel form of classroom interaction. This paradigm shift has led to the adoption of a studentcentered pedagogy, wherein educators collaborate with their students to facilitate an immersive learning experience. Consequently, student engagement has gained significant recognition and appreciation within this educational framework. This study explores the necessity of using educational technology into the teaching of social studies in Nigeria in order to enhance the quality of education. This study investigates the impact of educational technology on the teaching and learning of Social Studies. It explores how teachers can facilitate student learning and create productive classroom environments through the use of educational technology. The aim is to equip students with 21st century skills, including critical thinking, collaboration, problemsolving, and digital literacy, which are essential for their success in the workplace and society. This study examines the use of technology as a means of equalising educational opportunities for students from diverse backgrounds, including those from different socio-economic groups.

Moreover, this study examines some obstacles encountered in the incorporation of educational technology in the context of Social Studies instruction and learning. It ultimately proposes strategies to enhance the efficient implementation of educational technology in social studies education.

Key words: Social Studies; Educational technology; 21st Century skills; Digital literacy.

Introduction

The utilisation of educational technology plays a crucial role in facilitating effective teaching of Social Studies education, as it contributes to the reciprocal and dynamic relationship between teachers and students in the learning process. Educational technology encompasses a wide range of resources that learners can utilise to effectively engage with and incorporate into their academic pursuits. Furthermore, it is important to note that the use of this particular tool serves as a crucial component in enhancing the efficacy of instruction, thereby fostering the acquisition of knowledge among students.

Research has demonstrated that there is no discernible benefit for young learners when it comes to refraining from the use of high-quality instructional television or various forms of technology (Bittman, Rutherford, Brown, & Unsworth, 2011). Research has indicated that there is a positive relationship between being exposed to relevant academic-focused and education-related media and cognitive as well as academic success (Pasnik, Penuel, Llorente, Strother, & Schindel, 2007; Kirkorian et al., 2008).

Furthermore, there are compelling studies available that provide evidence for the advantages of utilising technology in the instruction of learners. These studies indicate that the adoption of technology has resulted in improved levels of motivation, problem-solving abilities, critical thinking skills, and other related outcomes (Clements, 1994; Clements & Swaminathan, 1995; Haughland, 1999; Clements & Sarama, 2002; Ploughman & Stephen, 2005). In addition, research has demonstrated a positive correlation between exposure to high-quality instructional television and cognitive and academic advancements (Kirkorian et al., 2008; Penuel et al., 2012).

In contemporary society, there is a growing trend where young children are experiencing cognitive and socio-emotional development inside a digital milieu. Individuals are incessantly bombarded on a daily basis by a multitude of technological devices, including smartphones, computers, tablets, and other similar electronic gadgets. These devices have become a ubiquitous element of their daily lives. The noteworthy discovery is that digital technology devices provide a positive means of integrating academic content into the classroom through authentic and meaningful activities. Research has demonstrated that the integration of technology in projects has been shown to have a positive impact on retention rates, problem-solving abilities, collaborative efforts, as well as motivation and attitudes towards learning (Vega, 2012).

Contemporary technological instruments, such as video games and computers, exert a significant impact on learners, engendering a sense of attraction and influencing their behaviour. The utilisation of digital media has been found to boost children's natural learning processes due to their active engagement with the visual and auditory stimuli it provides (Couse & Chen, 2010). According to Papert (1993), the process of learning takes place when children actively engage in activities that involve observation, listening, and practical application. Therefore, the correct use of digital devices and computers' interactivity holds significant potential for enhancing learning domains and functional involvement, particularly for learners.

While the reliance on printed materials for teaching students has remained consistent over time, the emergence of technology in education has gained significant traction in recent years. This shift is attributed to the growing emphasis on 21st century learning, leading to the rapid integration of educational technology as a fundamental aspect of school representation. Technological devices are ubiquitous in educational settings and in the daily lives of students. The integration of students' potential and instructional resources and tactics is a key aspect of mainstreaming in the teaching and learning process, which aims to facilitate effective learning. Currently, there is widespread adoption of various forms of educational technology, ranging from digital gadgets that are increasingly being integrated into classroom settings (such as Smart-Boards, iPads, tablets, etc.), to a nascent technology known as robotics and coding. A few instances of such educational technology are shown below:



Figure 1: Instances of Educational Technology Utilized in Classroom settings

Conceptual Clarification

21st Century Classroom: The term "21st century classrooms" has become synonymous with a significant and widespread shift in educational methodology. This transformation encompasses a wide range of learning tools and skills that vary among different classes and schools. The phrase "21st century classrooms" is commonly used to refer to the modifications in educational methodology, practises, and policies that have emerged in response to the unique characteristics and needs of the current generation of learners (Jenson & Taylor, 2010). This instructional approach is specifically aimed at cultivating learners who possess the necessary competences of the 21st century, including knowledge, skills, and attributes, which will enable them to effectively address intricate difficulties and fully realise their capabilities. Certain examples of these qualities encompass, although they are not limited to, communication, critical thinking, cooperation, as well as creativity and invention. One key justification for prioritising the focus on 21st century classrooms is the need to align with the evolving times, which are frequently associated with shifts in the labour market from an industrial production model to a rapidly changing, technology-driven, and interconnected global knowledge economy. Therefore, a definitive correlation may be shown between technology and schools in the 21st century.

Educational technology encompasses various hardware and software tools, as described by Abimbode (1997). These tools include television, radio, electronic classrooms, instructional gadgets, motion pictures, computer-managed or assisted instructional materials and equipment, projectors, communications, and other necessary equipment and tools that facilitate the learning process. The primary aim of educational technology is to facilitate and optimise the process of learning, as well as to improve overall performance. The enrichment of learning and performance is evident. In the context of this paper, educational technology is defined as the assortment of technical instruments and media that facilitate the distribution, creation, and interchange of knowledge. Within the field of Social Studies education, it is evident that a universally agreed definition of the idea of Social Studies remains elusive among educators in this discipline. Different interpretations of the subject have been proposed, influenced by the significance attributed to the notion and the desired function that Social Studies educators aim for it to fulfil within diverse global settings. The significant variations in the definitions of Social Studies among different countries and within the community of Social Studies instructors can be attributed to this phenomenon. Several definitions in Nigeria have been formulated by authorities with the intention of utilising Social Studies as a means to tackle and overcome various national and international issues and concerns within society.

Ezegbe, Ikwumelu, and Okeke (2012, as cited in Dange, 2020) assert that Social Studies, as an academic subject, centres its attention on social change and ensures the realisation of intentional interactions between individuals and their physical and social surroundings. It fosters a comprehensive education among individuals, while also cultivating a heightened awareness of societal issues and a commitment to social responsibility. The educational programme aims to cultivate the principles of collaboration, integrity, and national responsibility, while also equipping individuals with the necessary competencies to address environmental challenges. According to the research conducted by Danladi, Onuorah, and Ahmed (2012, as referenced in Dange, 2020), Social Studies is seen as the discipline that examines the interaction between individuals and their surroundings. It is also perceived as an educational curriculum that enables society to transmit knowledge, values, and positive attitudes that are deemed valuable. The purpose of this paper is to examine Social Studies as an academic topic or discipline that introduces students to the various forms of interaction and impact between themselves and their surroundings, with the aim of fostering constructive growth within their immediate and global society.

Educational Technology's Impact in Social Studies Teaching and Learning

The integration of technology in educational institutions is a relatively recent kind of social change that is always evolving and improving. It is important to provide a comprehensive understanding of the advantages of technology in relation to teaching and learning within the context of Social Studies education. Undoubtedly, the advent of the twenty-first century has brought out a digital culture that necessitates the establishment of novel educational prerequisites (Bitner & Bitner, 2002). Scholars are increasingly acknowledging the widespread adoption of technological devices, including desktop computers, iPads, laptops, and smartphones, in educational settings worldwide, particularly in schools and classrooms (Kerr, 2004; Goode, 2010; Churchill & Wang, 2014; Mao, 2014; Selwyn & Facer, 2014). The tremendous advancements in technology have undeniably brought about a revolution in the field of education (Kenney, 2011).

Due to the intricate nature of the field of Social Studies, educational institutions have acknowledged the need for embracing innovative approaches in the teaching and learning of Social Studies. The integration of educational technology in the teaching and learning of Social Studies has emerged as a noteworthy innovation that is widely embraced by both educators and students in the field (Mezieobi, Fubara, & Mezieobi, 2015). In Aziz's (2010) study, educational technology is defined as the incorporation of appropriate tools, methods, or processes that facilitate the engagement of sensory perception, cognitive abilities, and memory to strengthen instructional strategies and improve students' achievement in the field of Social Studies. Therefore, the incorporation of technology in the instruction of Social Studies has the potential to enhance students' engagement and sustain their focus. This implies that the teaching and learning of Social Studies has the potential to engage and captivate learners, fostering their curiosity and focus on the subject matter.

Technology-based training has the potential to enhance learning outcomes and foster a greater appreciation for classes among students due to its practical orientation, resulting in a more efficient use of time. The acquisition of knowledge is enhanced when pupils are able to visually see the content being taught. The utilisation of technology in the delivery of Social Studies has the potential to make abstract concepts or situations more tangible during the teaching and learning process. This primarily occurs when educational technology is employed as a supplementary tool for teaching. According to Torruam and Abur (2013), the use of ICT-driven instructional aids in the teaching and learning process enhances the authenticity, practicality, and durability of learning for students. The significance of contextualization or concretizing abstract concepts is in its ability to bring the lesson closer to the students' personal experiences and understanding. Furthermore, it enables pupils to create more positive attitudes and enhance their focus on learning. In the context of Social Studies education, the integration of educational technology enables students to effectively retrieve and remember the content they have been taught, as they possess the experiential understanding of the material covered in the classroom (Ann, 2011).

In order to optimise the effectiveness and efficiency of teaching and learning, it is imperative to have a high level of communication between educators and students. The integration of educational technology in the teaching and learning of Social Studies in schools enhances the interaction between students and their teachers, resulting in highly effective, efficient, and suitable communication. Similarly, the incorporation of educational technology, such as digital tools and information and communication technology (ICT), can facilitate the provision of effective feedback to Social Studies students during the teaching and learning process. According to Mezieobi, Fubara, and Mezieobi (2015), the provision of suitable feedback entails more than simply highlighting a student's shortcomings or subpar performance. It also enables the learner to identify and implement corrective methods to improve their performance.

According to Torruam and Abur (2013), the use of educational technology in the context of Social Studies instruction aligns with the concept of facilitating mass instruction and accommodating a diverse audience. This incorporation of educational technology in the delivery of Social Studies enables teachers to effectively engage several students concurrently. Additionally, this approach affords educators the autonomy to delve into uncharted territories and employ innovative instructional techniques, so offering students novel avenues for active involvement. Consequently, this fosters a stimulating and inclusive learning environment that is accessible to all learners. Arguably, a notable transformation has occurred in classroom dynamics, resulting in a decentralisation of authority and a shift towards a more student-centered approach, hence reducing the emphasis on teacher-centric instruction.

In the contemporary day, the dissemination of information is not limited to traditional print materials, but has expanded to encompass digital media as well. This highlights the need for literacy to encompass abilities beyond basic reading and writing, as learners must possess the ability to access, analyse, assess, and create digital media. The expanded concept of literacy referred to as New Media Literacy (NML) encompasses the essential cognitive abilities necessary for individuals to effectively navigate and engage with contemporary society. These skills encompass critical thinking and are crucial for individuals to thrive in the modern world. According to Hutchison and Reinking (2011), technologies provide unparalleled affordances in the realms of reading and writing, necessitating distinct techniques and abilities that differ from those associated with traditional print media. Certain affordances, or strengths, can be observed in the context mentioned. These affordances pertain to the provision of innovative literacy tools for educators, like the ability to modify font size, utilise text-to-speech features, and collaborate on learning activities through the Internet (Anderson-Inman & Horney, 2007).

In the context of a technologically advanced digital era, educational technology plays a crucial role in supporting Social Studies students by enabling them to effectively engage with multimedia resources, catering to diverse learning styles and facilitating enhanced communication and collaboration between students and their instructors. The students are also provided with opportunities to engage in activities that are well-focused. Regarding teachers, technology aids them in enhancing organisation and efficiency by facilitating paperless tasks, hence promoting a more practical approach to teaching. According to Hardman (2015), the ability to effectively employ technology in the facilitation of teaching and learning is no longer discretionary, but rather an essential requirement for equipping students with the necessary competencies for achievement.

In general, the utilisation of educational technology in classrooms, spanning from elementary to higher education, has numerous benefits for learners of various backgrounds. These benefits encompass various aspects, including increased motivation and engagement (Kinash, Brand, & Mathew, 2012), decreased disciplinary issues and dropout rates (Yard, 2015), improved communication and collaboration among students, teachers, and learners (Kenney, 2011; Keser&Özdamli, 2012), a more stimulating work environment (Costley, 2014), a wider range of teaching strategies and flexibility (Fernández-López, et al., 2013), and the ability to foster greater independence and personal

Table 1: Comparisons of Classroom With and WithoutEducational Technology

Classroom without Technology Classroom with Technology	
- Traditional "chalk & talk" methods	- Produces novel avenue for students engagement
- Much morevaried student engagement	- Potential for school-sponsored learningto higly
engage students better than print-media	
- Centered on teacher	- Centered on student
- Classroom controlled by teacher	-Decentralization of teacher in classroom
- Learning is passive	- Learning is active
- With variation, engagement could be	- Socio-economic status (SES) backgrounds appears
layered by social class to some degreebridged by engagement	
- Teaching is more conventional;	- Technology provides for more spontaneous
planned lessons	instructions/lessons
- Driven by textbooks	- Driven by research
- Principal mechanism for learning	- Students are engaged and assessed by utilizing
and assessment is print-text	Multimedia
- Likelihood for peers to distract from	- More adaptation of peer processes to school
school-sponsored classroom activities	sponsored goals
- Learning is more isolated	- Learning is more collaborative
- Better access to educational advantages - Less inequality with more access to knowledge	
by students from wealthy backgrounds through technology	
- Novel forms of social capital are enabled	

Source: Adapted from Jaffee (2013).

Table 1 provides a side by side comparison of classroom configuration without technology to those that are presumably the 21st century classrooms, characterized by the increasing use of technology. Whereas the former are structured around order and routine, 21st century classrooms present novel adaptable and creative learning spaces for both teachers and students.

Role of Educational Technology in Bridging Inequality of Access to Education

According to Toh, Causo, Tzuo, Chen, and Yeo (2016), the growing adoption of multimedia devices in educational settings can be ascribed to the swift technological improvements observed in the 21st century. There is a growing trend in educational environments where many technologies, like iPads, smart TVs, Chrome books, robotics, and artificial intelligence, are being incorporated. Keeping up with the rapid and constantly growing improvements in technology poses a significant challenge. The objective of this study is to undertake a thorough analysis of the consequences arising from the rapid increase in technology usage, specifically in relation to social stratification and the digital divide. A comprehensive range of scholarly works has been dedicated to thoroughly investigating the implications of social class and education (Calarco, 2014; Demerath, 2009; Lareau, 2003; MacLeod, 1987; Mullen, 2010; Willis, 1977). It is widely agreed among scholars that the behaviours displayed by children, which are influenced by social class discrepancies, have discernible implications for their future opportunities and achievements (Calarco, 2011). Within the framework of this particular method, it is of utmost importance to comprehend the ramifications associated with the use of technology in order to gain insight into the current state of socioeconomic inequality. Selwyn and Facer (2014) argue that the notion of the "digital divide" remains a prominent concern in conversations surrounding the potential advantages of digital technology within the realm of education. The issue of persistent inequities and injustices regarding the utilisation of technology in education, along with the equitable access to knowledge, has become a prominent social concern. Scholars have made the observation that the current era, commonly referred to as the information age, is marked by a notable increase in the abundance of knowledge, which is widely distributed among individuals. Nevertheless, it is vital to contemplate whether this dispersion transpires in an inequitable approach.

This study posits that the advent of the digital era has greatly enhanced the accessibility of knowledge, hence influencing educational inequality in the context of the digital divide. The ubiquitous availability and accessibility of technology in both home and classroom settings can be advantageous for learners at all levels, irrespective of their socio-economic status. It is noteworthy to acknowledge that modern educational settings exhibit a reduced reliance on print-oriented resources, instead prioritising the provision of digital gadgets. The incorporation of these technologies inside educational environments has led to notable transformations in conventional classroom methodologies. For example, there has been a decrease in the dependence on printed materials in instructional sessions and evaluations, a rise in the prioritisation of personalised activities and assignments, and a heightened concentration on student-centered learning. The widespread use of electronic devices among students of different ages and academic backgrounds, both within and outside educational institutions, has resulted in a decrease in visible signs of social inequality in terms of access to information, in contrast to the hierarchical divisions that were evident during the time of print media. There exists a potential for the existence of a perceived social hierarchy, particularly among peer groups, predicated upon the selection of technological devices. Nevertheless, the accessibility of resources, such as internet connectivity, remains constant irrespective of whether an outdated PC or the most recent iPhone X is utilised.

When comparing the possession of a compilation of textbooks pertaining to a particular subject with the use of a solitary digital gadget, it becomes evident that the latter greatly streamlines the procedure of accessing the internet. The mismatch between knowledge retrieval using digital devices and print media is a significant concern in the present era. The accessibility of information is considerably enhanced when employing digital technology. Undoubtedly, this bears significant significance in terms of augmenting students' learning and cultivating their active engagement.

Furthermore, it is important to contemplate the potential impact of schools adopting contemporary technology on mitigating the existence of a digital gap within families, so serving as a catalyst for fostering equality. Could electronic devices potentially increase student engagement in a way that effectively mitigates the digital divide?

The potential exists for technology promotion to unintentionally mitigate socio-economic inequities, as digital literacy is prevalent and fairly evenly distributed across different socioeconomic groups. Recent research findings indicate that a considerable segment of individuals in Canada who are below the age of 45 actively participate in the utilisation of diverse technological platforms on a daily basis (Statistics Canada, 2017). In a similar vein, the United States has witnessed a significant surge in the proportion of individuals who are able to connect to the internet, with over ninety percent of Americans now having this capability. This represents a major growth compared to the situation in the early 2000s, when only around half of the population had access to the internet (Smith, 2017). Cotton and Jelenewicz (2006) have posited that experts have recommended the reduction of the digital divide through the convergence of individuals inside structured environments, such as educational institutions, which ensure equitable access to digital resources. Therefore, educational institutions possess the capability to alleviate the consequences of the digital divide by offering access to evolving technology.

According to Haste (2009), it may be argued that in the forthcoming years, education can safely anticipate that a significant proportion, if not the entirety, of young individuals would possess technological devices that facilitate internet access and communication. This assumption aligns with the prior anticipation that every student will own fundamental writing tools, such as pens, compasses, and rulers. Technology is frequently regarded as a possible remedy for tackling the issues of student engagement and socio-economic inequality in modern educational environments.

Challenges in Educational Technology Utilization in Social Studies Teaching and Learning

In Nigeria, numerous educational institutions have yet to fully adopt the concept of integrating educational technology into their teaching and learning methodologies. Insufficient implementation of educational technology applications in social studies and other disciplines persists, mostly due to the following factors:

The lack of an implementation strategy is evident. The rate at which innovations, such as the use of novel technologies, spread

inside organisations is typically characterised by a gradual diffusion process (Rogers, 1983). The presence of this phenomenon is demonstrated by the observation that even after several decades since the inception of information and communication technology (ICT), numerous educational institutions continue to face challenges in effectively integrating technology into teaching practises to enhance student learning outcomes.

Given the intricate nature of incorporating technological advancements inside educational establishments, it is imperative to engage all relevant parties (employing a bottom-up and topdown approach) in the process of designing and executing the curriculum. In the execution of an educational technology plan, it is crucial to incorporate a diverse variety of stakeholders who are representative of the individuals directly engaged in the implementation and support of the curriculum. Unfortunately, a considerable number of key stakeholders remain largely unnoticed during the planning phase, thereby contributing to the perceived lack of success in implementing educational technology effectively within educational institutions.

Uebbing (1995) asserts that the involvement of various stakeholders, including teachers, students, parents, administrators, business community members, curriculum consultants, technology coordinators, network specialists, and technicians, is essential in the formulation of the strategy. The comprehension of the complexity of issues surrounding the deployment of educational technology and the necessary technological infrastructure in educational institutions can only be achieved by a comprehensive and well-coordinated effort including all key parties.

The financial consequences of insufficient support. A crucial component inherent in every aspect of a prosperous implementation strategy for educational technology is the provision of adequate financial backing to facilitate the acquisition of human, hardware, and software resources necessary for curriculum enhancement. Insufficient funding for human resources, namely in terms of teacher training and technical support, would have a negative impact on the integration of technology in curriculum implementation.

The absence of adequate infrastructure is a challenge to the successful integration of instructional technology in schools. Without the necessary hardware, software, and network infrastructure, the effective implementation of technology-driven curricula becomes unattainable. Therefore, the exorbitant prices of desktop computers, laptops, and ICT facilities, together with their accompanying accessories, continue to pose a significant obstacle in Nigeria. The reason for this is because numerous educational institutions and educators lack the financial resources to acquire information and communication technology (ICT) and related facilities, as these resources are not locally produced in Nigeria. The lack of access to information and communication technology (ICT) resources, such as computers and internet, can significantly impede teachers' ability to effectively utilise educational technology in the classroom.

The deficiency in computer literacy is a significant barrier that must be addressed in the current adoption of educational technology in schools. This challenge pertains to the necessity of bridging the gap in technological competencies within the teaching and learning process. The lack of adequate computer literacy among teachers and pupils poses a significant obstacle in the effective utilisation of educational technology. Some teachers lack the necessary skills to effectively utilise computer and internet technologies. In the context of Nigeria, this particular difficulty poses significant difficulties for educators seeking to integrate educational technology into the teaching of social studies inside educational institutions.

The insufficiency of electricity supply in Nigeria poses a significant challenge due to the inconsistent nature of power availability for operating ICT equipment. It is a typical occurrence to discover that numerous institutions inside the nation depend on diesel generators for their electrical provision. The exorbitant expenses associated with acquiring generators, in addition to the

costs of procuring petrol or diesel to sustain their operation, pose a significant financial burden for numerous educational institutions in Nigeria.

Conclusion

Can the integration of educational technology revolutionise the methods and outcomes of teaching and learning inside contemporary classrooms of the 21st century? Indeed, the concise response is affirmative. It is noteworthy to acknowledge that in the context of a global community, there has been widespread acceptance of the integration of educational technology in the processes of teaching and learning. The promotion of technology integration in Nigerian educational institutions is crucial for enhancing the teaching and learning of Social Studies. The utilisation of educational technology in the delivery of Social Studies education continues to be a powerful method for cultivating and attaining the skills necessary for success in the 21st century. These skills include critical thinking, collaboration, digital literacy, and problem-solving, among others. By equipping learners with these skills, they are better prepared to effectively navigate the demands of the workplace and society as a whole. Consequently, this contributes to national development by training individuals to possess the necessary expertise to promote and instill appropriate values for the betterment of the community. To attain the aforementioned goals, it is imperative that many stakeholders, including the government, educators, students, parents, schools, and the private sector, demonstrate unwavering commitment towards prioritising the integration of educational technology in the realm of teaching and learning. Hence, it is imperative to adhere to information and communication technology (ICT) in order to adapt to the contemporary digital landscape.

Suggestions

To facilitate the adoption of educational technology in the delivery of Social Studies education within Nigerian educational institutions, it is imperative for institutional management to offer consistent and sustainable professional development opportunities to their staff. This can be achieved through regular training and re-training initiatives, which will equip teachers and lecturers with the necessary skills and knowledge to effectively integrate educational technology into their Social Studies instruction. Similarly, it is imperative to ensure the provision and accessibility of educational technology and other relevant information and communication technology (ICT) infrastructure and facilities within educational institutions. This measure is crucial in fostering inclusivity and equity in educational access for learners across all categories. Furthermore, it serves to augment computer and digital literacy among both educators and students. In order to promote the cultivation and mastery of 21st-century skills, it is imperative to strategically implement and enforce the integration of new digital technologies into the educational process, as traditional analogue methods are ill-suited for the demands of the digital age. In addition, it is imperative to provide learners with guidance about the optimal utilisation of digital devices, commonly referred to as educational technology, by imparting knowledge on the appropriate and inappropriate practises of technology usage within educational settings.

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