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The Relationship between VR (Virtual Reality) Technology towards Citizenship Element: A Conceptual Paper

ABSTRACT: VR (Virtual Reality) technology is a new form of technological innovation that allows users to experience an experience that resembles real life. Meanwhile, the elements of citizenship are the characteristics that a citizen is supposed to have. This study aims to identify the influence of the use of VR technology on the element of citizenship through the teaching and learning of history subjects. This literature review of study, the elements of citizenship encompass: values of patriotism; feelings of belonging; loyalty and obedience to the law; national identity; and relationship with society. Besides that, through the literature studies that have been conducted, it has been found that there is an influence of the use of VR technology on the element of citizenship directly and indirectly. This study is important to provide a clearer picture of the influence of VR technology on the citizenship element and, in turn, can contribute to the latest technology that can be used in the field of education.

KEY WORD: Virtual Reality Technology; Citizenship Element; History Education.

RINGKASAN: “Hubungan antara Teknologi VR (Virtual Reality) terhadap Elemen Kewarganegaraan: Satu Kertas Konsep”. Teknologi VR merupakan satu bentuk inovasi teknologi baru yang membolehkan pengguna mengalami perasaan pengalaman yang menyerupai pengalaman sebenar dalam persekitaran maya yang dicipta. Manakala, elemen kewarganegaraan pula merupakan ciri-ciri yang ada seseorang warganegara. Kajian ini bertujuan untuk menganalisis hubungan penggunaan teknologi VR terhadap elemen kewarganegaraan melalui pengajaran dan pembelajaran mata pelajaran sejarah. Melalui kajian-kajian literatur yang telah dijalankan pengkaji telah mendapati elemen kewarganegaraan dibahagikan kepada: nilai patriotisme; perasaan kepunyaan; kesetiaan dan kepatuhan kepada undang-undang; identiti negara; dan hubungan dengan masyarakat. Kajian ini juga turut mendapati bahawa terdapat hubungan antara penggunaan teknologi VR terhadap elemen kewarganegaraan secara langsung dan juga secara tidak langsung. Kajian ini penting untuk memberi gambaran yang lebih jelas mengenai pengaruh teknologi VR terhadap elemen kewarganegaraan dan seterusnya dapat menyumbang satu lagi teknologi terkini yang boleh digunakan dalam bidang pendidikan.

KATA KUNCI: Teknologi Virtual Reality; Elemen Kewarganegaraan; Pendidikan Sejarah.

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INTRODUCTION

The rapid progress of the world today is heavily influenced by current technological developments. The evolution or changes in technology have given birth to various new technologies across different fields, altering the landscape of those fields. According to [Hamed Taherdoost \(2022\)](#), technology is advancing rapidly, involving various new technologies or innovations, such as cloud computing, the IoT (Internet of Things), artificial intelligence, blockchain, big data analytics, AR (Augmented Reality), and VR (Virtual Reality). The introduction of these new technologies has a significant impact on daily human life, encompassing various tasks and activities, such as work, education, health, and business. These new technologies will clearly transform the landscape of human life in various daily activities and routines ([Taherdoost, 2022](#)).

The introduction of these new technologies also demands that people make efforts to adapt to these changes in their daily lives. The efforts to adapt to these new technologies will reshape human life and industries, creating new opportunities to acquire specific skills, improve the quality of life, and respond to global challenges, such as pandemics and natural disasters ([Tiwari, 2022](#)). The advancement of technology with the introduction of new technologies clearly plays an important role in human life.

According to [A. Bulhoon \(2021\)](#), technological advancement is crucial in life, because it makes life easier, improves communication and information sharing, and impacts capabilities. This clearly shows that technological changes or the introduction of new technologies bring significant importance to human life ([Bulhoon, 2021](#)). Most of human life today is influenced by new technologies, such as cloud computing, mobile computing, social media, ubiquitous computing, data analytics, and IoT ([Saloni & Bhosale, 2023](#)).

These technological changes indeed have a significant impact on human life. Not only do they affect daily life activities, but these new technologies also influence elements of citizenship. These new technologies play a crucial role in shaping how individuals participate in society and engage with political and social issues ([Connolly, 2022](#)).

Also, [A. Permana et al. \(2023\)](#) argue that the rapid development of technology, especially in information and communication technology, has changed the way individuals interact with society and participate in civic activities. In conclusion, technological advancements influence citizenship elements by shaping how individuals interact online, as well

as affecting their rights, responsibilities, and roles in the digital era, which are closely linked to one's citizenship (Permana *et al.*, 2023).

The world today is undoubtedly driven by technological advancement. Every moment, various new technologies emerge, requiring people to adapt to their use in daily life. The existence of these new technologies has a positive impact on daily human life. Therefore, technological advancements play an important role in human life. In fact, some individuals have become highly dependent on these new technologies in their daily lives.

These new technologies not only influence daily human life, but also have an impact on a person's attitudes, behaviors, and moral values. This clearly demonstrates the importance of technological advancements involving new technologies in daily human life holistically, as they influence the entirety of human life.

Study Purpose. This study generally aims to analyze the relationship between two research variables, namely: VR (Virtual Reality) technology and elements of citizenship. Therefore, the study seeks to examine the relationship between VR technology and citizenship elements.

RESEARCH METHOD

This study employs a literature review methodology (Snyder, 2019). It involves collecting articles related to previous research on the use of VR (Virtual Reality) in history education and articles on previous research concerning citizenship elements, using various databases, such as Google Scholar, Scopus, Science Direct, Sage Publication, and Taylor & Francis.

The obtained articles have been analyzed both analytically and holistically. The researchers have also selected articles published between 2020 and 2025 to ensure that the referenced studies are current and relevant to current needs.

FINDINGS AND DISCUSSION

The literature review was conducted referring to previous studies related to VR (Virtual Reality) technology and the use of VR technology in teaching and learning, particularly in history education. Additionally, the literature review also involved referring to existing studies related to citizenship elements and citizenship elements within education.

About the VR (Virtual Reality) Technology. According to J. Zhang, S. Chembumroong & P. Sureephong (2021), the concept related to Virtual Reality (VR) technology was first introduced in the 1950s, and after that, the technology began to be widely used in education and for laboratory purposes (Zhang, Chembumroong & Sureephong, 2021).

According to B. Carvalho *et al.* (2022) and Z. He (2023), VR technology started to be introduced in the United States of America around the 1980s, involving the use of new computer technology that was automatically controlled. VR technology was created and developed by computer scientist and artist Jaron Lanier in 1984 (Carvalho *et al.*, 2022; He, 2023).

In general, VR technology is a technology that allows users to interact with environments generated by computers, simulating physical conditions in the real world or imagination through sensory experiences such as sight, sound, and touch (Scorolli *et al.*, 2023; Conrad, Kablitz & Schumann, 2024).

VR technology can be used in various fields for multiple purposes, such as training, education, entertainment, and therapy. According to A. Gunawan, N. Wiranto & D. Wu (2023), this VR technology has been used in various fields such as art, engineering, history, medicine, life sciences, physical sciences, and many other fields (Gunawan, Wiranto & Wu, 2023).

The use of VR technology in various branches of these fields can indeed achieve its intended purposes because, according to R.E. Sulter, P.E. Ketelaar & W.G. Lange (2022), VR technology has several features that help to achieve its intended purposes. Among these features are the ability to provide immersive and interactive experiences, allowing users to feel their presence in a simulated environment using headsets or controllers, and the technology can be customized and specifically designed according to an individual's preferences and needs. All of these features make VR technology a tool that can be used for multiple functions across various fields (Sulter, Ketelaar & Lange, 2022).

VR technology is generally divided into three types based on the level of immersion experienced by the user: IVR (Immersive Virtual Reality), semi-immersive VR systems, and non-immersive (Villena-Taranilla *et al.*, 2022). Non-immersive VR uses a combination of computer screens to present virtual information to users and only involves user interaction with traditional interfaces consisting of a mouse or keyboard. Semi-immersive VR systems provide users with only a partially immersive experience.

Meanwhile, immersive virtual reality or IVR is the type of VR technology that provides users with the highest level of immersion, involving the use of a HMD (Head Mounted Display) to give users a real and more realistic experience, making them feel as if they are truly in the situation or environment that has been created (Villena-Taranilla *et al.*, 2022).

Additionally, P.A. Rauschnabel *et al.* (2022) have classified VR technology into two other types: atomistic and holistic. Atomistic VR technology refers to VR experiences that are more focused on a specific purpose or task, with the user's experience being secondary in the effort to achieve certain outcomes from the use of the technology. Typically, atomistic VR is designed to be simpler, with lower levels of interactivity, and it emphasizes the functionality of VR rather than its immersive quality (Rauschnabel *et al.*, 2022).

On the other hand, holistic VR places greater emphasis on providing users with a more immersive and engaging experience. Users are made to feel a stronger sense of presence within the virtual environment. Holistic VR is usually designed with more complexity, involving multiple senses and social interactions, allowing users to engage naturally and participate directly. The use of holistic VR provides a more enjoyable and immersive experience for users (Rauschnabel *et al.*, 2022).

A truly immersive experience plays an important role in ensuring the success and effectiveness of using VR technology in a particular field or activity. Therefore, according to J. Fromm *et al.* (2021), there are several aspects that need to be considered during the development of a VR application to ensure that it provides a real experience to users. These aspects include appearance, interactivity, and behavior. These three aspects need to be considered when developing a VR application so that the virtual environment used can provide a real experience for users and thus achieve the intended use and purpose of its creation (Fromm *et al.*, 2021).

In conclusion, VR technology is a new form of technology that allows someone to be in a virtual world generated through computer applications, providing a real experience that involves multiple senses. This VR technology has also been widely used in various fields, and the development of VR applications that emphasize immersive experiences can support the achievement of the intended purposes of the technology. VR technology is important for use in various fields, especially in areas involving education, training, therapy, and applications.

VR (Virtual Reality) Technology in Education. In the field of education, according to G.B. Petersen, G. Petkakis & G. Makransky (2022), VR technology has been in use for the past three decades, beginning as early as the 1990s (Petersen, Petkakis & Makransky, 2022).

VR technology in the educational context involves the use of immersive virtual environments to enhance teaching and learning experiences, allowing students to engage with three-dimensional (3D)

and interactive visuals to better understand complex concepts, scenarios, or practices (Oyelere, Agbo & Oyelere, 2023).

Additionally, S. Luo, D. Zou & L. Kohnke (2024) mention that VR technology in education involves highly interactive, computer-generated multimedia environments, enabling students to become participants in a computer-generated virtual world. The use of VR technology introduces a new dimension to the world of education by providing a virtual learning environment that can enhance students' learning experiences and help them achieve desired learning outcomes (Luo, Zou & Kohnke, 2024).

The use of VR technology in education can have other positive impacts on learning, particularly in making learning more effective. According to B. Christian, C. Salvador & G. Christian (2021), the use of this technology can enhance students' experiences, motivation, and understanding of abstract concepts, while providing deep learning experiences that make learning more effective (Christian, Salvador & Christian, 2021).

Additionally, M.M. Asad *et al.* (2021) state that the use of VR technology can improve students' learning experiences by offering direct experiences with a particular environment, thereby increasing student engagement (Asad *et al.*, 2021).

Moreover, VR technology plays a significant role in education as its usage can assist students in the learning process and improve their performance in specific subjects (Al-Farsi *et al.*, 2021).

The effectiveness of using VR technology in education is clear. This effectiveness is due to the features of VR technology itself. According to L. Xiangming *et al.* (2024), some features supporting the use of VR technology in education include: providing a deep learning environment that separates students from the real world and places them in a digital environment; VR technology projects visual images from the real world into headsets, thereby creating a synthetic world for users to experience; enhancing learning effectiveness compared to conventional or two-dimensional (2D) approaches, especially when using HMDs (Head-Munted Displays) aimed at delivering a more immersive learning experience; and improving training effectiveness and providing a unique learning environment through simulation-based training (Xiangming *et al.*, 2024).

Additionally, VR technology has features such as immersive learning experiences, improved understanding of complex concepts, increased engagement, and motivation in the learning process, and providing a safe environment for training and skill improvement (Lee *et al.*, 2024), which clearly support its effectiveness for use in education.

The use of VR technology in education clearly provides immersive and interactive learning experiences that stimulate various senses of students. Moreover, the use of VR technology in education also offers a deep experience that makes abstract technical concepts easier to understand and access for students (Vogt *et al.*, 2021).

Therefore, VR technology is highly suitable for use in education because it can help students become more active and develop a deeper understanding of concepts, which can ultimately improve learning outcomes as desired.

Citizenship and Citizenship Element. Citizenship is a concept that cannot be avoided when discussing nations and their people. According to M. Jakimow (2022), citizenship is a complex concept that goes beyond legal definitions and encompasses various cultural, political, and social contexts (Jakimow, 2022).

The concept of citizenship refers to the status of being a member of a community, society, or nation, which involves rights, responsibilities, obligations, and privileges within that community, society, or nation (Langdridge, 2022; Wahlund & Palm, 2022).

Additionally, K. Tonkiss (2022) and S.R. Birkvad (2024) state that citizenship is also related to the legal or judicial status of being a member of a specific political community, such as a nation, which grants certain rights, responsibilities, and privileges. Citizenship clearly refers to the legal status of an individual within a community, society, or nation, characterized by the rights, responsibilities, obligations, and privileges that are granted and must be observed (Tonkiss, 2022; Birkvad, 2024).

These rights, responsibilities, obligations, and privileges encompass various elements. In other words, there are specific elements that contribute to the concept of citizenship. N.C. Hanakata & F. Bignami (2023), as well as R.V.D. Does & V. Jacquet (2023), have listed a sense of belonging, loyalty, and adherence to the laws, values, and ideals of a nation or society, as well as identity and the relationship between a community and the nation, as key elements of citizenship (Does & Jacquet, 2023; Hanakata & Bignami, 2023).

Also A. Harris (2023) lists similar elements of citizenship, including participation in civic life, identification with, and a sense of belonging to the community (Harris, 2023).

Similarly, E. Knott (2022) identifies a sense of belonging, identity, and connection with the society or nation as elements of citizenship (Knott, 2022).

Also M. Blake (2022) includes a sense of belonging, engagement, and

involvement in the political life and community of a country, along with adherence to its laws and institutions (Blake, 2022).

C. Schnaudt et al. (2021) outlined several elements such as rights, responsibilities, principles of commitment, participation, loyalty, and solidarity of an individual toward a nation (Schnaudt et al., 2021).

Meanwhile, L. Nesse et al. (2022) stated that rights, access to resources, social relationships, involvement in community activities, responsibilities toward others, and knowledge of the community are also part of the elements of citizenship (Nesse et al., 2022).

Additionally, several scholars such as E. Knott (2022); D. Langdridge (2022); and C. Dedeoglu (2023) identified patriotism as one of the elements of citizenship. Therefore, based on the literature review conducted, it can be concluded that the elements of citizenship consist of: Patriotism; Sense of Belonging; Loyalty and Obedience to Laws; National Identity; and Relationship with Society (Knott, 2022; Langdridge, 2022; Dedeoglu, 2023).

These elements of citizenship are crucial to being nurtured among citizens. The importance of these elements includes representing a sense of belonging and participation in the community, providing specific rights or responsibilities, shaping one's identity and sense of belonging, offering a framework for interacting with others, contributing to the overall functioning of the community, and being vital in promoting a sense of unity, equality, and shared values with society (Hudson, Sandberg & Sundström, 2023). This clearly highlights the significance of citizenship elements in enabling individuals to function effectively as citizens within a community or nation.

Also H. Randell-Moon (2023) argues that the elements of citizenship are influenced by digital accessibility. Therefore, he believes that the importance of citizenship in the digital age includes enhancing engagement, making digital literacy a civic duty, biopolitical impacts, fostering a sense of community and volunteerism, as well as providing economic and social advantages (Randell-Moon, 2023).

Further, N.C. Hanakata & F. Bignami (2023) argue that in the digital era, the elements of citizenship involve the interconnection between physical and digital environments, emphasizing the need to navigate and negotiate rights, responsibilities, and identity in the context of technological advancements and global challenges. Clearly, the elements of citizenship are dynamic practices that can adapt to current times, contributing to the formation of good citizens across different eras (Hanakata & Bignami, 2023).

Citizenship Element and Education. In the effort to cultivate these elements of citizenship, education serves as a crucial medium. Education is essential for fostering and promoting the elements of citizenship (Egan-Simon, 2022; Meylemans, Wilde & Bradt, 2023; Hahn-Laudenberg, 2024).

According to J. Suppers (2022), education is important for nurturing the elements of citizenship because it equips young generations with the knowledge, skills, and opportunities to actively engage in society and contribute to the democratic process. Additionally, education plays a key role in promoting certain virtues that are valuable for citizens to possess, such as civility, honor, honesty, courage, and generosity (Suppers, 2022).

In the context of education, the elements of citizenship or citizenship education refer to the process of educating individuals to become responsible and active members of society (Hsu et al., 2022; Jong, 2022).

This educational process involves the integration of educational practices and curriculum aimed at shaping informed, responsible citizens who actively engage in the community (Apandie & Rahmelia, 2022).

Additionally, citizenship education is also a process designed to equip students with essential knowledge and skills related to the relationship between citizens and the state, serving as early education to prepare them to defend their state or nation (Hidayani, 2022).

These skills are essential to support the elements of citizenship. Key skills related to active citizenship, participation, and democracy include engagement and collaboration with the community, critical thinking and reflection, as well as respect for diversity and inclusivity (Sivesind, Traetteberg & Fladmoe, 2023).

And M. Shaw (2023) outlines important skills such as knowledge of political systems, understanding of rights and responsibilities, critical thinking and analysis, respect and awareness of various cultures, as well as civic engagement and participation (Shaw, 2023).

Also M. Santos, V. Carlos & A.A. Moreira (2023) emphasize skills such as understanding social issues, problem-solving skills, collaboration and communication, responsibility and autonomy, as well as technological skills (Santos, Carlos & Moreira, 2023).

Additionally, skills such as decision-making, cultural and social literacy, media literacy, and teamwork are also relevant to efforts in fostering elements of citizenship (Cross, 2024).

In efforts to cultivate skills related to the elements of citizenship among students, the teaching approaches or methods used also play a crucial role in shaping learning outcomes related to citizenship elements.

Appropriate approaches and methods include classroom discussions, collaborative methods, and the use of rubrics along with open-ended questions (Coopmans & Rinnooy-Kan, 2023; Daas et al., 2023; Malazonia et al., 2023).

And B. Sachs-Cobbe (2023) lists several ways to educate students to become good citizens, such as integrating citizenship values into the curriculum, modeling behavior, encouraging critical thinking, fostering understanding and empathy, and practicing good citizenship (Sachs-Cobbe, 2023).

Additionally, schools play a vital role in the effort to nurture these elements of citizenship. Schools are important in promoting elements of citizenship among children by providing opportunities for them to explore and practice citizenship elements in various situations and school activities. In other words, schools serve as training grounds for students to learn how to apply skills related to the elements of citizenship (Sincer et al., 2022; Humes, 2023; Cross, 2024; Sivesind, Traetteberg & Fladmoe, 2023).

In conclusion, the elements of citizenship cannot be separated from the education system. They are not only taught as a specific subject but, according to A. Sautereau & D. Faas (2023), these elements can also be found in other subjects such as History, Geography, and Civics (Sautereau & Faas, 2023).

Furthermore, M. Santos, V. Carlos & A.A. Moreira (2023) argue that elements of citizenship can also be taught in interdisciplinary subjects by integrating elements from various disciplines such as Science, Mathematics, Engineering Technology, and the Arts. Through this integration, teachers can provide students with a comprehensive understanding of the citizenship elements and their importance in society. This demonstrates that education is highly dynamic in supporting and preparing students with citizenship elements, and it also serves as the primary platform for fostering citizenship elements (Santos, Carlos & Moreira, 2023).

Previous Studies on VR (Virtual Reality) Technology in History Education. When discussing elements of citizenship, we cannot avoid discussing historical education. According to S. Edling et al. (2020); J. Lofstrom et al. (2020); J. Lofstrom et al. (2021); Lytje, M. (2022); and N.J.I. Martin & P.M. Martinez (2022), historical education is not only closely related to the formation of citizenship elements, but also plays a crucial role in shaping and nurturing these elements in students (Edling et al., 2020; Lofstrom et al., 2020; Lofstrom et al., 2021; Lytje, 2022; Martin & Martinez, 2022).

Therefore, historical education is an effective platform in the effort to instill citizenship elements among the younger generation. For instance, in Malaysia, the introduction of history subjects at the primary school level aims to instill historical knowledge and foundational historical thinking skills, alongside fostering patriotism in students (Nazir, 2019).

This clearly demonstrates that historical education serves as a medium for cultivating citizenship elements, such as patriotism among students. Thus, it can be concluded that one of the outcomes of historical education is the nurturing of citizenship elements.

Many researchers have used VR (Virtual Reality) technology in teaching and learning history or social sciences. In these studies, VR technology is seen to have a positive relationship or influence on teaching and learning history. Research by I. Remolar, C. Rebollo & J.A. Fernández-Moyano (2021); J. Parong & R.E. Mayer (2021); and X. Zhang, X. Wang & J. Lu (2023) found that the use of VR technology in teaching and learning history can enhance learning outcomes and student engagement (Parong & Mayer, 2021; Remolar, Rebollo & Fernández-Moyano, 2021; Zhang, Wang & Lu, 2023).

Similarly, research by A.E. Putri (2024) also found that the use of VR technology not only improves learning outcomes but also enhances students' understanding of the impact of historical events on the present. These studies indicate that the use of VR technology has a relationship with learning outcomes and student engagement in history education and also improves students' understanding of historical events, which certainly includes elements of citizenship (Putri, 2024).

VR technology is not only used to enhance learning outcomes and student engagement in history education and understanding historical concepts, but is also used to foster historical empathy among students through historical education.

According to D.A. Wagner & T. Dversnes (2022) and S. Karn (2023), historical empathy supports learning outcomes related to citizenship, and fostering historical empathy can also strengthen citizenship elements among students. Therefore, the use of VR technology to cultivate historical empathy indirectly supports the nurturing of citizenship elements among students (Wagner & Dversnes, 2022; Karn, 2023).

Previous researchers, such as A. Rodriguez et al. (2021); T. Patterson, I. Han & L. Esposito (2022); and D. Richards et al. (2023), have used VR technology to foster historical empathy in history education. Their studies found that the use of VR technology positively affects historical

empathy, enhancing it among their study respondents (Rodriguez *et al.*, 2021; Patterson, Han & Esposito, 2022; Richards *et al.*, 2023).

Furthermore, research by A. Rodriguez *et al.* (2021) found that the use of VR technology influences students' understanding and empathy towards cultural heritage through active student involvement in culture (Rodriguez *et al.*, 2021).

Also S.D. Utari *et al.* (2021) conducted research using VR technology for learning to involve local history and cultural heritage and found that the use of VR technology can improve understanding and contextualization of cultural materials among their study respondents (Utari *et al.*, 2021).

Similarly, studies by J. Barbara (2022) and V. Iasha *et al.* (2023) used VR technology to take their study respondents on virtual visits to historical and cultural heritage sites. Their studies showed that students understood, appreciated, and were more interested in these historical and cultural heritage sites (Barbara, 2022; Iasha *et al.*, 2023).

And also Y. Sharma & C. Sharma (2022) found through their study that the use of VR technology allows their study respondents to learn creatively and act as active citizens by developing pride in important national monuments, including historical and cultural heritage sites (Sharma & Sharma, 2022).

Therefore, the use of VR technology also has a relationship with the appreciation of cultural heritage, which is part of citizenship elements, because cultural heritage is closely related to citizenship elements (Cuenca-Lopez, Martin-Caceres & Estepa-Gimenez, 2021). Efforts in preserving cultural heritage can influence critical thinking and citizen engagement (Lopez-Fernandez *et al.*, 2021; Neto *et al.*, 2023).

Additionally, the use of VR technology is also related to the development of nationalism, which is a part of citizenship elements related to patriotism (Drazanova & Roberts, 2023).

F.W. Ariesta *et al.* (2023) found in their study that the use of VR technology has a relationship with the cultivation of nationalism among their study respondents and also improves respondents' understanding and appreciation of national values. This study clearly shows the influence of VR technology on nationalist values, which are part of patriotism and one of the citizenship elements (Ariesta *et al.*, 2023).

M.F.F. Massat, M.Q.A.N. Amarah & Z. Ibrahim (2022) conducted a study using VR technology to address moral issues closely related to the characteristics of good citizenship. Their study found that the use of VR technology helps respondents become aware of moral issues and the appropriate measures needed to address them. This study clearly shows

the impact of using VR technology in fostering good citizenship traits, which also include citizenship elements (Massat, Amarah & Ibrahim, 2022).

Through the literature review conducted, there is a lack of previous studies explicitly clarifying the direct influence of VR technology on citizenship elements. However, previous studies support the influence and relationship of VR technology on citizenship elements indirectly by involving learning outcomes related to citizenship elements and values related to these elements.

Therefore, the influence of VR technology on citizenship elements in this conceptual paper is based on previous studies related to the relationship between VR technology and learning outcomes associated with citizenship elements and values closely related to citizenship elements.

Proposed Conceptual Framework. Based on the literature review conducted on previous studies regarding the use of Virtual Reality (VR) technology and citizenship elements, this conceptual paper proposes the following conceptual framework:

Discussion. Citizenship elements are a key component in the development of technology as they help individuals become good citizens in facing the challenges posed by technological advancements, particularly in avoiding misinformation and the spread of hate sentiments. Citizenship elements indeed play a crucial role among today's youth (Saputra & Al-Siddiq, 2020; Milenkova & Lendzhova, 2021).

However, G. Nikiforov (2022) in his study in Russia found that the formation of citizenship elements among children faces challenges due to changes in life norms and shifts occurring in government, educational institutions, and the media (Nikiforov, 2022).

Similarly, V.H. Nabiyeu (2020) found that children in Kazakhstan also struggle to maintain citizenship elements due to socioeconomic changes and political environment (Nabiyeu, 2020).

In Malaysia, issues related to citizenship elements have also been identified in studies by N.A. Zainal, M.A.M. Salleh & W.A.W. Mahmud (2020); M.H.Y. Johari (2021); K.H.K. Samsu et al. (2021); N.A. Zainal, M.A.M. Salleh & W.A.W. Mahmud (2021); I.W. Othman, M.S.M. Radzi & M.S. Esa (2022); N.H.F. Talib, H. Ghazali & N.W. Dzaliu'zzabir (2022); and I.W. Othman et al. (2023). These studies revealed several issues related to citizenship elements, such as weak awareness of citizenship elements, moderate average levels of citizenship elements, youth insensitivity to national elements in the constitution, and a lack of understanding and remembrance of the struggles of national independence figures. Despite

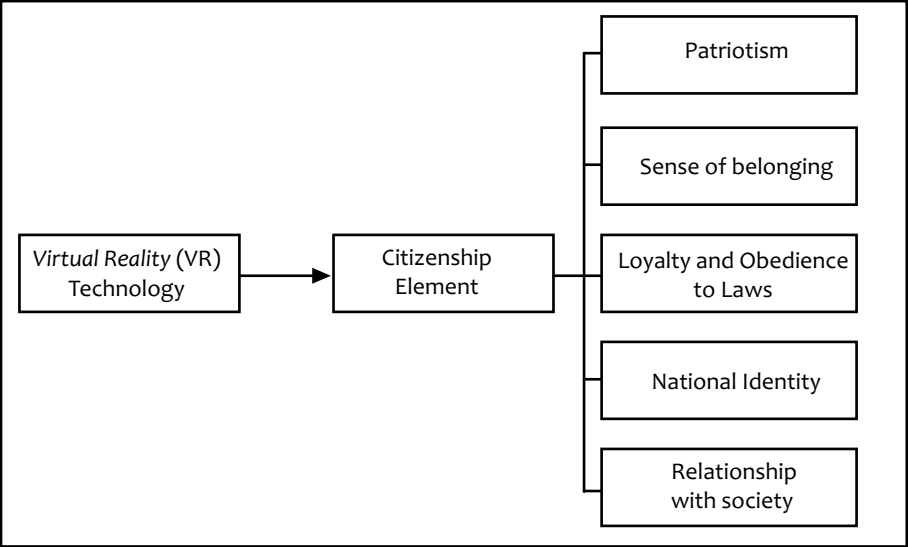


Figure 1:
Proposed Conceptual Framework

the importance of citizenship in the younger generation, the studies indicate that there are issues related to these elements (Zainal, Salleh & Mahmud, 2020; Johari, 2021; Samsu *et al.*, 2021; Zainal, Salleh & Mahmud, 2021; Othman, Radzi & Esa, 2022; Talib, Ghazali & Dzaliu'zzabir, 2022; Othman *et al.*, 2023).

Moreover, VR (Virtual Reality) technology has been selected, due to its extensive use in history education, which also includes citizenship elements as a primary teaching goal. Studies by P. Brownridge (2020); J. Parong & R.E. Mayer (2021); X. Zhang, X. Wang & J. Lu. (2023); R. Aryani *et al.* (2024); and A.E. Putri (2024) have used VR technology in teaching and learning history, examining the impact of VR on learning outcomes, student motivation, and interest in history education (Brownridge, 2020; Parong & Mayer, 2021; Zhang, Wang & Lu, 2023; Aryani *et al.*, 2024; Putri, 2024).

However, there is a lack of specific studies directly examining the impact of VR technology on citizenship elements. Nonetheless, studies by M.F.F. Massat, M.Q.A.N. Amarah & Z. Ibrahim (2022) and Y. Sharma & C. Sharma (2022) have found that VR technology influences the development of good citizenship attitudes and traits. Therefore, this study is necessary to provide a clearer understanding of the impact of VR technology on citizenship elements (Massat, Amarah & Ibrahim, 2022; Sharma & Sharma, 2022).

CONCLUSION

This conceptual paper provides a clearer understanding of the relationship between the use of VR (Virtual Reality) technology and citizenship elements. Based on the literature review conducted, the researcher has found a positive relationship between the use of VR technology and citizenship elements, both directly and indirectly. Previous studies have shown that VR technology has a positive relationship with citizenship elements.

The relationship between VR technology and history education is also considered, given that there are learning outcomes related to citizenship elements included in history education. Additionally, values related to citizenship elements are also fostered in history education. Therefore, the relationship between the use of VR technology and the teaching and learning of history education is also considered in the context of citizenship elements.

Based on the literature review conducted, this study has found a lack of articles and research directly addressing the relationship between VR technology and citizenship elements. Most of the referenced studies relate to the indirect relationship between VR technology and citizenship elements, as well as the relationship between the use of VR technology and history education teaching and learning. Therefore, there is a need for more research on the impact of VR technology on citizenship elements, as studies focusing on the direct impact on citizenship elements are relatively limited.

This conceptual paper also details the positive relationship between the use of VR technology and the cultivation of citizenship elements through the teaching and learning of history education. Thus, this paper provides an overview of the effectiveness of using VR technology in history education. VR technology can be widely applied in the field of education, particularly in history education, to foster citizenship elements among students.

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