Building Social Justice Character Through X-Reality Technology: A Systematic Literature Review

Mohammad Alvi Pratama(✉), Anthon Freddy Susanto, Hesti Septianita, and Rosa Tedjabuwana

Faculty of Law, Universitas Pasundan, Jakarta, Indonesia
alvi.pratama@unpas.ac.id

Abstract. The use of XR Technology (Augmented & Virtual Reality) has begun to develop in various sectors, but the education sector has not been fully implemented. Moreover, in the field of social-humanities the application is still minimal. Meanwhile, the Immersive feature offered by XR Technology is very useful in the field of education-pedagogy because it can improve the psychological behavior of users. This study investigates the unanswered psychological potential of user behavior, especially in building the character of social justice through XR Technology. So, the Systematic Literature Review method was carried out to provide a comprehensive synthesis of research results from the published literature related to the use of XR Technology's influence in building social-justice characters. Several finding variables that will be systematically searched for are 1) empathy, 2) social awareness, 3) social justice, 4) psycho-action, 5) the influence of local wisdom values in the use of XR Technology. The results of the identification mapping, a meta-analysis was carried out to find the efficacy (effectiveness) of XR Technology in building the character of social justice. The latest developments of these literatures will be taken only from Google Scholar Database. These findings will indicate great potential in building social justice character through x-reality technology and the challenges in technical, organizational, and economic considerations in the use of this technology. The accumulated insights from knowledge and actions in this research will be useful for academics and practitioners who are interested in the use of this technology in general for law students and specifically in the development of the character of social justice.

Keywords: Social Justice Character · XR Technology · Systematic Literature Review

1 Introduction

Empathy can be characterized as an emotional response caused or related to another emotional event. Empathy arises through understanding the situation from others (everything), which can bind humans to something meaningful, one of which is understanding and fighting injustice.

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With various kinds of changes that occur so quickly, especially in the 2019 to 2022 period caused by the Pandemic. The development of research and application in the field of technology is increasingly real, various kinds of virtual efforts in that time span are becoming more real. One of them is the so-called "empathy machine" that human interaction with computers through simulations can create a sense of empathy for users (humans). The technology used is the technology in XR (extended reality) which allows users to understand other situations across space, time, situations, and others through real and immersive simulations.

1.1 Social Justice Character

John Rawls's conception of Social Justice is the main virtue of the presence of social institutions. Goodness for the whole community cannot override or interfere with the sense of justice of everyone who has obtained a sense of justice, especially the weak [1].

The social issues promoted by the Social Justice Warrior (SJW) Movement are unique as a form of enlightenment to groups that are generally repressed by the dominant power, culturally, economically, and politically. Social justice activists try to bring change towards an emancipatory society, in the understanding that it is not SJW that changes society so that they are awakened to live a better life, but rather change people's mindsets so that they become sensitive to everyday issues that often experience injustice, which in the end It is society that changes itself. This emancipatory task is part of Woke Culture which emerged as a reaction to social inequality in women's empowerment [2], sexual orientation, religious freedom, skin color, ethnicity, to the environment [3]. Does not occur naturally, but is constructed by power relations that make social injustice 'normal' [4]. SJW is therefore closely related to this woke culture.

Some of the characters that are built through the conception of social justice learning, one of which is empathy. Empathy is an important ingredient in the success of a social work, in this case is social justice, although empathy is not always well articulated as a concept that can be communicated and taught. In addition, in developing skills, empathy must be explained through a strong heuristic tradition both as a construction and as an experience in social justice education [5].

1.2 Empathy

Empathy is understood as prosocial behavior that allows humans to feel and understand the experiences of others [6]. Historically and theoretically, the concept of empathy comes from the idea of Einfuhlung which is defined as "feeling into" expressed by the German philosopher Robert Vischer. In recent literature, empathy encompasses a wide range of complex ideas or concepts and experiences around trying to understand or understand another.

Other ideas are that empathy is divided into three concepts namely affective which relates to personality, cognitive which relates to understanding [7], somatic which relates to trying to understand the pain of others [8]. These processes are the latest studies by experts in the field of neuroscience to map how the human brain responds when processing empathic data.

This paper attempts to describe empathy in general terms – although it is difficult because empathy is closely related to behaviour, neurological, and cultural – which is a process of someone trying to "feeling into/with" another's experience. In this context, because empathy is an important part of prosocial behavior – social justice character – this paper aims to conduct a survey on how empathy can lead to these attitudes and behaviors, especially through XR technologies. So what is being sought is related to the effectiveness of the empathy machine itself through XR technology.

1.3 Social Justice Character and Empathy in XR

The virtual space referred to in this paper is a space created through computer technology in the form of 3D with immersive character. In a space like this, virtual objects can be in the form of a real virtual world such as virtual reality/VR or the real world that is integrated with virtual such as augmented reality/AR [9]. In addition to these two things, it also includes a combination of the two, namely mixed reality/MR [10].

This virtual space is an empathy facilitator or what is popularly referred to as the ultimate empathy machine by Chris Milk [11]. VR can allow users to feel and understand things that are faced by others, while AR can bring out information from others. And when talking about both or MR then this is the initial concept of the metaverse that you want to build when both can provide more access for users. This virtual space can become the main space for users in the future.

The ability to see the world horizon from one's eyes/perspective, or to feel the pain experienced by someone, to be someone else, can be done immersively & embodiment through VR technology and supported by the Meta-Ajar platform in scenarios special circumstances, such as in prison, or feeling blind/low visibility or even experiencing natural disasters and others [12]. Users will experience and reflect on what happened so as to produce non-biased empathy.

In addition, the characters needed to become a Social Justice Warrior (hereinafter referred to as SJW), will emerge from the ability to feel empathy [12]. These characters can be supported by VR technology which is also known as Empathy Machine, because there is no previous technology that can increase a high sense of empathy [13] through immersion (a perfect replica of the real world), presence (a sense of equal presence between the real & virtual world), embodiment (body subject self). Empathy activates our feelings to understand the other person through perspective and pain so that we can provide assistance to him or her. Through VR, individuals can become other people with their situation (perspective-taking), which is called embodiment or body ownership illusion [14].

Although real direct interaction with the community is irreplaceable to instill social justice sensitivity in students, the use of Virtual Reality is an innovation and breakthrough in the world of social justice law education in a situation that does not allow law students to go to these communities because of the use of meta This teaching can generate engagement through high exposure to students through the process of building an immersive social justice character without being limited by space and time.

2 Methods

We conducted a systematic literature review research, so we applied the PRISMA methodology based on the Covidence Web-based tool used to work on the collaborative process with the authors.

2.1 Planning

Kerangka Kerja	Deskripsi	Pertanyaan
PICO	- Population - Intervention - Comparison - Outcome	Is the use of XR Technology (I) more effective (O) than Non-XR (C) in social justice character building education (P)
PEO	- Population - Exposure - Outcome	In a pandemic situation (P), does the use of XR Technology (E) affect social justice character development indicators (O)

2.2 Searching Strategy

1. Keywords. Keywords chosen are based on the association of social justice, empathy, and XR Technologies.
2. Database. We use google scholar as a single database. We do this because this is our initial survey.

Main Keywords

1. Social Justice Character
2. Empathy
3. XR Technology (Extended Reality Technology)
4. VR Technology (Virtual Reality Technology)
5. AR Technology (Augmented Reality Technology)

Additional Keywords

1. Behaviour (Outcome measures)
2. Personality (Outcome measures)
3. Social Awareness (Outcome measures)
4. Empathy (Outcome measures)
5. Metaverse (Comparison Intervention)
6. Online (Comparison Intervention)
7. Students (Population)

Boolean Operator
Google Scholar

2019–2022	(“empathy” OR “sympathy” OR “pity” OR “compassion”) AND (“social” OR “justice” OR “character” OR “behaviour”) AND (“virtual” OR “mixed” OR “augmented” OR “extended”) AND “reality”

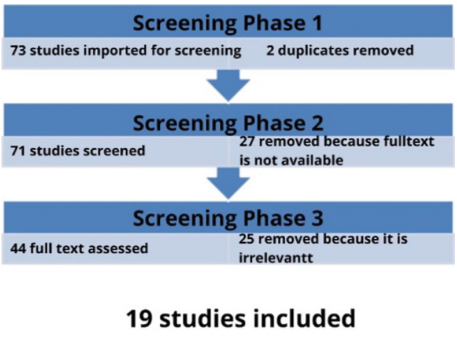
2.3 Data Extraction

To extract relevant information, we developed a data extraction rubric after reading articles, the data rubric is based on aspects related to XR technologies, empathy and social justice character. DE1–DE4 data extraction objects are used for general description of article manuscripts – study ID, title, publication type, keywords. The XR technologies in DE5 describe these types in general, namely AR, VR, VR-Video, and MR. DE6 is measuring empathy focused on scientific measurement methods based on qualitative, quantitative or mixed and also there is N/A where the measurement is found to be unclear. DE7 is a social justice character, which is to measure the impact of whether the empathy can issue a social justice character attitude. This is related to the sense of justice that arises for the user (Table 1).

Table 1. Rubrik ekstraksi data dari naskah-naskah final terpilih

ID	Data Extraction	Type
DE1	Study ID	Open Text
DE2	Title	Open Text
DE3	Publication Type	Conference paper, journal article, thesis and etc.
DE4	Keywords	Open text
DE5	Used XR Technologies	AR, VR, VR-Video, MR.
DE6	How empathy measured?	Qualitative, quantitative, campuran.
DE7	How empathy eliciting social justice character?	Behaviour, Personality and etc.

Systematic literature review process using PRISMA.



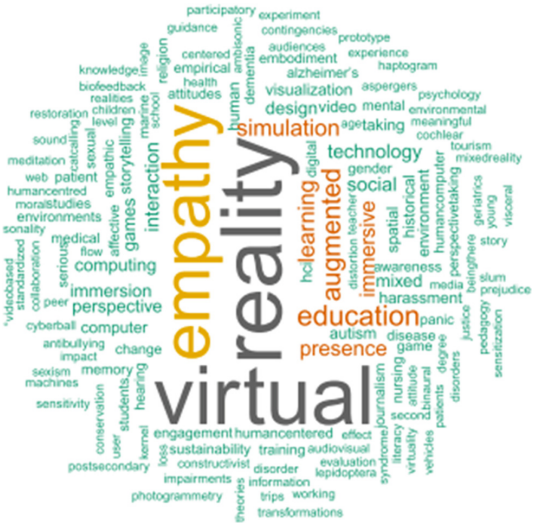
2.4 Survey Result

The outline of our systematic literature review process uses PRISMA. After we completed the search, we started a rigorous screening process of 73 article manuscripts which were then deleted due to duplication, then 27 were removed because the full-text was not available, then 25 articles were removed because they were not relevant so as to obtain 19 articles that were in accordance with this research plan. The justification for deleting 25 irrelevant articles was because (1) it was not a research paper, (2) duplication, (3) not an experiment, (4) not a framework, (5) not focusing on empathy, (6) not focusing on social problems., (7) no full text. In the end, we got 19 final articles for which data extraction will be carried out.

2.5 Articles Description

We extracted relevant data from 19 articles resulting from the screening process. This information is then analyzed and summarized statistically and graphically. Then, the insights from the qualitative analysis will be discussed in the discussion analysis section. All data on article manuscripts included in this literature review are given in Appendix 1. The articles are from 2019–2022, and the number of publications each year can be seen in Table 2. In general, studies on XR technology, especially in the area of empathy/behavior, are increasingly increasing every year. For the type of publication, we have about 8 articles from experimental research (42%) and 8 articles in the form of frameworks (42%) and 3 articles from surveys (16%).

The articles are obtained from various disciplines, from computer science, communication, education, journalism, social humanities that use XR technology for empathy. The keywords that appear the most are reality, virtual, and empathy.



3 Result and Discussion

3.1 Data Synthesis

19 Articles that became the object of a survey on various topics related to empathy research and XR. In particular, 8 articles in the form of experiments, apart from the field of computer science or (human computer interaction – HCI) [18–20] also exist from journalism [21], film [22], communication [23], education [24, 25], and psychological [19]. And 8 other articles in the form of papers related to ethical framework [26–33]. In addition, there are also 3 previous surveys that form the basis for this research [15–17]. Based on these data, we will describe three themes in the article which then lead us to a discussion regarding approaches to increasing empathy with XR.

3.2 XR Technologies

The use of XR to increase empathy is growing in popularity especially through the most widely used VR technology. 75% use VR technology, 12.5% use VR-360 video and 12.5% use XR. The choice of technology in VR is important because it is related to the problem of immersion characteristics. The reason why VR is most widely used is because of the role of eye-witness roles that allow users to witness and experience events virtually, as real as possible and immersively.

3.3 Empathy

50% of the experiments used qualitative methods while 37.5% used quantitative methods and 12.5% used mixed methods. All experiments use humans as research subjects. The results that can be concluded are that (1) XR Technology is very influential on one's

feelings of empathy (although in this context it not only increases but can also decrease empathy according to Jarani [34]), (2) The effect of empathy based on the context of the role of witnessing is the biggest. (3) Pixel quality does not affect the quantity and quality of empathy, but the type of content does [18].

Broadly speaking, empathy can be raised and enhanced through XR technology, but in the ethical framework proposed by Adomatis [29] that it is unethical to force empathy out of a human being assisted by technology.

3.4 Social Justice Character

Although only a few explicitly explain the correlation between empathy and justice in the object of the paper. However, the entire text of the article emphasizes that the effort to increase empathy is to understand the situation of "the other" (the use of the word different from other people is because many use it not only in the context of understanding humans but also related to animals and the environment). Specifically Slater [26] said that XR-empathy will bring users into a critical and ethical mindset. Dionysius [22] emphasized that XR-empathy brings more awareness to social and historical issues. Fox [28] asserts that XR-empathy brings more users into a pro-social character but the current content is not much towards the subject-marginalized but still reduces discrimination. This is in line with Hawes [19] who said that XR-empathy facilitates the relationship between two subjects to transfer knowledge, especially in changing mindsets. Marjan [21] made this effort by using XR-empathy to fight patriarchy. Adanin [24] and his students found that XR-empathy more easily leads students to behavior that is critical of environmental crises. In addition, a survey conducted by Bonime in large organizations and companies in the world that [16], XR-empathy provides a comprehensive-holistic picture to a person to assist in making decisions so as to result in less conflict that occurs.

Based on these findings, XR-empathy is not only related to things around passive empathy but also fosters an active attitude (psycho-action). This becomes very important because the basis of the attitude of social justice character is not only passive but actively aims to eliminate injustice. Although it should be noted, that the growth of this attitude should not violate morality which will result in a pseudo or illusive social justice character because of that compulsion. However, this is an opportunity for further research in the future that the growth of empathy that leads to the formation and cultivation of social justice characters can be facilitated by using XR ethically.

In addition, contextually the experiments that have been carried out show that awareness of injustice can be accessed by all people together so that everyone knows, understands, the context of injustice that occurs in all parts of the world. So, the social justice character that is formed is not only in the local or national context but in a global direction. It is undeniable, nowadays there are so many problems in human life that are faced globally, we are no longer a local community but become a global society facing crises and challenges together. Thus, the use of XR technology can be a bridge in space, time, culture and other aspects that limit mutual understanding so far regarding the situation of each country.

4 Conclusion

This survey research based on systematic literature review has limited time so that the database is only based on Google Scholar. In addition, the variables for data extraction that are sought are also about methodology, use of technology, the impact of empathy and how it correlates with social justice character.

This research will be carried out more comprehensively in the future by enriching the database and data extraction variables.

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