

## X-REALITY BASED SOCIAL JUSTICE EDUCATION IN LEGAL META-EDUCATION

<sup>1</sup>ANTHON F. SUSANTO, <sup>2</sup>HESTI SEPTIANITA, <sup>3</sup>ROSA TEDJABUWANA and  
<sup>4</sup>MOHAMMAD ALVI PRATAMA

<sup>1,2,3,4</sup> Pasundan University.

Email: <sup>1</sup>anthon.susanto@unpas.ac.id, <sup>2</sup>hesti.septiana@unpas.ac.id, <sup>3</sup>tedjabuana.rosa@unpas.ac.id,

<sup>4</sup>alvi.pratama@unpas.ac.id

### Abstract

Social justice in legal education is managed as a learning activity for law students and at the same time as a community service activity especially the poor and marginalized ones suffer from social injustice. This type of learning model aims to generate social-justice sensitivity in students in hope that the character of social justice warrior will be inherent so that law graduates will not only focus on handling profitable cases. When legal education 'was forced' to shift to an online learning, some objectives seem to not be achieved as expected. Sensitivity, in the form of empathy, willingness to help that should have been deeply planted becomes thin because the process of learning is barred with remote technology, therefore (even though) they are in the community, but they are not with people. The character of social justice warrior is not firmly embedded inherently in the law students, while the character is the basis to produce social justice warrior. Efforts should be made to design legal education especially the social justice education online that can provide the same learning experience with the offline learning through x-reality based virtual technology in a meta-education of law.

**Keyword:** Social Justice, Meta Education of Law, Virtuality technology

### A. INTRODUCTION

Social justice in legal education is taught as learning activity for law students while at the same time it is managed as a community service mainly to poor and marginalized community suffers from social injustice. In this process of learning, law students with their legal knowledge will brought to communities to provide legal aid in the form of legal education of rights and access to justice and advocacy. They interact in close-range as a man with another human being to learn about the injustice in the community, understand the legal illiteracy in that community, recognize the condition of injustice, and to feel the crisis suffered by the people. Higher education bears this responsibility [1].

Conventional legal education applies an experiential learning method in a real setting to provide experience of professional skill and responsibility [2]. This is to expose the students with ethical and moral lessons by not only reading the book and legal texts. Social justice education is clinical that encourages students to engage with communities in order to empower people and at the same time develop students' soft skills and their social sensitivity. This learning activity can be adopted in an online setting but loses its value when direct and face-to-face engagement with the community mainly the marginalized community is absent. The heavy reliance on digital technology to ensure that the education process can be done is also a challenge if not a problem. The absence of real face-to-face setting between students and the

community is a challenge for the online learning since digital technology screens the real and the digital cosmos even though the virtual universe does not always mean a falsity, illusion, or fiction of a reality [3]. One of the key points to produce strong and good lawyer is to train the students with litigating skills and at the same time to sensitize them to be aware of social injustice. It is the duty of law schools to prepare their graduates to not only become successful lawyers litigating in profitable law firms with rich clients but also representing underprivileged people while at the same time empowering the communities, promoting legal literacy, and to be the agents of change.

This writing is to develop idea of social justice traits to be generated through online education (social justice); the formulation of social justice characters to be developed through social justice education; and the construction of online meta-education of law that can build the social justice character through x-reality-based virtual technology.

X-reality can be used in legal education to study how the nature of legal meaning take place, such as experiencing a simulated high-profile case trial in courtroom, joining heated debate in parliament chamber, or negotiating contracts with real lawyer. Designing these scenarios in virtual reality can help students to refine their skill and give socio-psychological experience necessary in meaning-giving process of legal world, on how justice or injustice is constructed. Although real direct interaction with the community is irreplaceable to instill social justice sensitivity in students, the use of X-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 student through the process of building an immersive social justice character without being limited by space and time.

The design of social justice learning that can give a similar learning experience with one conducted offline through x-reality-based learning is necessary considering the gap in the achievement of social justice learning deemed to be less optimal in constructing and developing the social justice characters that it needs a model of social justice characters through x-reality-based learning to calibrate the learning achievement of social justice online with the one conducted offline and at the same time as to respond the change and development of law in the society related to the change and development of technology 4.0.

## **B. RESEARCH QUESTION**

This paper is to question the model of X Reality-based Legal Education in Legal Meta-Education compared to Online and Offline model of current-day Legal Education.

## **C. METHOD**

This paper applied multi-disciplinary approaches: (a) philosophical reflection, aimed to seek and open new path of thinking, to resolve latest problem, and to construct a model. This method is hoped to provoke creative idea on the development of x reality-based legal education in legal meta-education. (b) Conceptual approach, this is an attempt to supplement

the previous approach. It presents certain objects from practical perspective along with cognitive point of view in mind and particular attributes. Therefore, the steps begin with abstraction, we conceptually select, purify, or break one aspect of reality from another; and integration process, to combine units into single mental entity (however can be broken down to separated components when necessary). (c) Method of Text Criticism, as mode of analysis to identify the strength and weakness of present concept/model/idea, to utilize those as reference in understanding the relation between developing social justice traits and x reality technology in legal meta-education.

#### **D. RESULTS AND DISCUSSION**

**Conventional Legal Education.** Whereas most law schools focused to prepare their alumni to be expert in legal profession, to become those who understand law in formal-normativity [1], some law faculties develop and integrates social justice education in their curriculum for students to understand sensitivity of reality and social inequality. This kind of legal education applied experiential learning, a mode which provide real professional skills and responsibility. Most of student's activity is conducted in human relationship, a close distance between person-to-person approach, to get better understanding on client's issue and as well to raise the sense of crisis [2]. This education has been deploying experiential learning method in a real world-setting to provide students with professional skills training and professional responsibilities. This approach is to expose students to ethical and moral teachings not only through reading of law books or texts. Legal profession is a sector which requires skill and persons involve in this sector must always be ready to learn and develop their skills. Therefore, the students who study law have to gain such form of knowledge and skill since the beginning of their law school. A law student also needs to undergo internship as a requirement to submit final exam. These internships could be done under supervision of an advocate, under public institution, with an NGO, under the legal office of a company, etc. Legal education should touch the condition of people and perceive the changes and reaction in the community [4] [5]

Since 1970s, law schools and some legal institutions have been promoting and developing clinical legal education (CLE) model in teaching social justice. It is believed to be the most effective, so far, method to sensitize students to problems dealt with by people especially those who come from marginalized group of people and instill social justice character and to teach the students how to empower communities with legal literacy. Students are sent to poor and marginalized communities to offer advocacy or legal education. This is a best practice model to develop a social justice trait while at the same time contributes to the marginalized society.

**The Concept of Social Justice Traits.** According to Rawls, the concept of social justice is primary virtue of social institutions. The good for people should not eliminate or disturb the sense of fairness, especially the poor [6]. McKeown highlighted that social justice can be influential or be influenced in traditional teaching. Law schools can address broader issues of social justice in modules [7]. This notion is supported with Anna Cody and Frances Gibson arguing that law school can contribute to social justice by making their knowledge and research accessible to the community while at the same time emphasize the importance to

delivering practical change and challenging inequalities and injustice. It has been argued that social justice is a value of the legal profession and therefore lawyers should seek to promote and attain social justice through their work [8]. Social Justice Warrior (SJW) provoke issue to awake those who are repressed by dominant power in culture, economy, and politics. This kind of activism try to bring emancipation in society, not in a sense that SJW leads people into a better living condition, but in effort to reshape the way of thinking so that society can be more sensitive to injustice and do something about it. This emancipatory task is a part of woke culture arise as reaction to social inequality in women empowerment [9], sexual orientation, freedom of religion, ethnic and race [10], as well as environmental issues [11]. At this point, we can see that any social condition never occurs in natural way, instead it is a construction in power relation to force us to accept inequality as ‘normal’ state [12]. One of the traits to be developed in social justice education is about empathy. Empathy is an essential matter in social work, in this case a social justice. Despite it never be precisely articulated, empathy can be communicated and learned. In developing a skill, empathy must be defended in a strong heuristic tradition, either as a construction or experiential social justice education [13] [14].

**Online Legal Education.** Social Justice Education exposes students to the question of ethics and morality. Therefore, it strongly motivates students to physically interact with society to develop their soft skills. However, while this kind of activity can be converted to online learning during Covid-19 Pandemic, it lost its meaning when committed without actual interaction with the community. The absence of physical presence between students and clients in real setting is a challenge. By experience, many law schools who are able to setup online classes for students mostly conduct virtual conference meetings, seminars, or lectures. The class or community experience is shifted to screen time. Despite our description that this kind of reality doesn’t mean fraud, illusion or fiction, virtual reality is a barrier to person-to-person interaction [3]. Our concern is that we are hardwired to be social, cultural, collaborative beings. We develop empathy and compassion for one another by looking into each others’ eyes, shaking hands, sharing a joke over coffee and just spending time together, all of those are taken away from us when we are forced to use virtual space in learning activity. By virtual we mean a video-conference teaching process where teacher and students participate in social applications such as zoom, google meet, etc. Taking into account, in legal education, it is crucial to understand that it is not about to develop logical skill to overcome fellow litigators in courtroom or to be able to compose a fine-structured legislation, but also to create empathy of moral and social justice. Another benefit on utilizing virtual technology if that we can reach more subjects that would be geographically difficult during conventional learning. There are many pitfalls that can take place due to the lack of face-to-face contact and other technical issues such as:

- 1) Law courses are based on experiential simulation in which students spend a great amount of time in collaborative activities which are nearly impossible to perform online.
- 2) Moot court, trial advocacy, practicums and other competitive exercises are a must in legal education which can only take place on-campus.

- 3) Physical interaction with fellows is very crucial in any field of studies and plays a key role in the development of a successful lawyer.

We understand that for the poor and marginalized community online technology is a luxury they cannot afford, and this is a problem. Furthermore, absence of real interaction hinders the students to obtain the trait of social justice.

### **Model of X Reality-based Legal Education in Legal Meta-Education.**

Development in virtual technology take us into a simulated physical environments where the process is approximated using scaled-down representations are usually used in education. However, such physical simulations alone may not capture all the details of a real environment. Virtual reality (VR) technology nowadays allows for the creation of fully immersive environments, bringing simulations to the next level. This initial idea marking our research in developing a cutting-edge virtual reality-based experience in legal education. There are varieties in simulation video games ranging from driving to surgery, each can be used as leisure activity or as means to serious training. Our goal is to create an immersive environment, a copy of real-life situation learning, in virtual reality of legal education. Virtual reality can be used in legal education to study how the nature of legal meaning take place, such as experiencing a simulated high-profile case trial in courtroom, joining heated debate in parliament chamber, or negotiating contracts with real lawyer.

Designing these scenarios in virtual reality can help students to refine their skill and give socio-psychological experience and empathy necessary in meaning-giving process of legal world, on how justice or injustice is constructed. Non-biased empathy in social justice education is a compulsory for a person to be able to do the right things [15]. 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.

Empathy is understood as prosocial behavior that allows humans to feel and understand the experiences of others [16]. Historically and theoretically, the concept of empathy comes from the idea of *Einfühlung* which is defined as 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 [17], somatic which relates to trying to understand the pain of others [18]. These processes are the latest studies by experts in the field of neuroscience to map how the human brain responds when processing empathic data. Virtual Reality (VR) in a proposed meta-learning platform enable students to understand the non-biased concept of empathy through virtually cross-experience. The ability to understand horizon through someone else's perspective, or fell the pain, become other person, can be taken in immersive and embodiment with VR technology consisting of case-scenario learning. Virtual reality (VR) has become popular in the past few years, as the hardware and software associated with it has become cheaper, faster, and easier to use, both in the consumer market as well as for

research purposes. As devices get more affordable, the market is filled with new and different types of games to utilize the hardware. From education to training and therapy, many applications were not possible to this extent previously [19]. In this project, the use of VR is dedicated to creating a richer and more immersive learning environment for the participants involved in the project [19]. VR technology able to bring immersive experience in special cases such as in prison scenario or simulating experience of person with low visibility and even in the middle of natural disaster [20].

The user, students, will experience and reflect what happened to construct a non-biased empathy, thus the social justice character is embodied [21]. This character can be built under VR technology known as empathy machine, since no previous technology able to generate such higher level of empathy [22] [23] [24] [25] [26] [27] [28] through immersion (perfect representation of real world), presence (sense or worldliness between virtual and physical realm), and embodiment (process of subjectivity). Empathy triggers our idea to understand others through perspective and pain, so we feel an urge to help them. In VR, an individual can be other person according to a perspective-taking, named as embodiment or body ownership illusion [29]. A survey conducted by Roswell shared respondents optimism that VR is a technology necessary to improve sense of empathy [30]. VR has been used to understand the perspective of patients and people with disability [25] [26] [27] [28] [31], becoming person of different race or outsiders in a group (social, political, or religion) [29][32][33] etc. This not only bring experience of factual empathy but also has implication to alter attitude, point of view emotional value, interest, and engagement of user [34].

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 [35] said that XR-empathy will bring users into a critical and ethical mindset. Dionysius [31] emphasized that XR-empathy brings more awareness to social and historical issues. Fox [37] 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 [38] who said that XR-empathy facilitates the relationship between two subjects to transfer knowledge, especially in changing mindsets. Marjan [ ] 39 made this effort by using XR-empathy to fight patriarchy. Adanin [40] 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 [41], XR-empathy provides a comprehensive-holistic picture to a person to assist in making decisions so as to result in less conflict that occurs.

Direct physical interaction with society is irreplaceable to generate social justice sensitivity to students, however, the application of Virtual Reality is an innovation and breakthrough in legal education during social restriction period. This meta-learning is hoped to present social

engagement by exposing students into immersive social justice character, unrestricted in space and time. The model can be constructed as following:



## E. CONCLUSION

X-reality-based social justice education in legal meta-education, is an alternative model that can be developed especially in legal education amid the shifting in recent digitalism and the outbreak of the Covid-19 virus. Legal education, especially at undergraduate level, is aimed to create law graduates with professional skills in law, and thus curricula of traditional law school give students chances to develop this ability through internship and clinical courses. Consequently, there are concerns about whether online learning can provide us future litigators with same or better quality compared to conservative method. Therefore, the social justice education can be developed and applied conveniently without worrying the conditions existed. X-reality based social justice education in legal meta-education can even give a new experience to pre-students to be immersed with technology and remain to have high social values (empathy, sympathy, plural conscious) as well as the local values developed in the community.

## REFERENCES

- 1) Anthon.F Susanto; Mella Ismelina Farma Rahayu; Hesti Septianita; Rosa Tedjabuwana; Lia Sukma (2020). Pendidikan Hukum dan Kearifan Lokal (1<sup>st</sup> edition). Logoz
- 2) Frank S. Bloch, (ed). (2011). The Global Clinical Movement, Educating Lawyers for Social Justice, Oxford University Press, New York, p. xxii.
- 3) Dao, Dan & Distance, Online & Ochola, Evans. (2019). Effective Online Course Design in a Learning Management System Has Strong Impacts on Student Learning Achievement: A Case Study at a University in Iowa. P.2.
- 4) Septianita, H., Tedjabuwana, R., & Utama, A. P. (2021). Pendidikan Social Justice di Masa Pandemi Covid-19: Pertimbangan dan Kekhawatiran. Jurnal Litigasi, 22(2), 242–271. <https://doi.org/DOI:http://dx.doi.org/10.23969/litigasi.v22i2.3841>
- 5) Rahardjo, S. (2009). Hukum dan Perubahan Sosial. Genta.

- 6) Faiz, Pan. (2009). Teori Keadilan John Rawls (John Rawls' Theory of Justice). *Jurnal Konstitusi*. 6. 15. 10.2139/ssrn.2847573.
- 7) McKeown, P. (2018). Can Social Justice Values be taught through Clinical Legal Education? In C. Ashford & P. McKeown (Eds.), *Social Justice and Legal Education (First)*, pp. 84–110). Cambridge Scholars.
- 8) Ashford, C., & McKeown, P. (2018). *SOCIAL JUSTICE AND LEGAL EDUCATION (FIRST EDITION)*. Cambridge Scholars Publishing
- 9) Ashlee, Aerial & Zamora, Bianca & Karikari, Shamika. (2017). We Are Woke: A Collaborative Critical Autoethnography of Three "Womxn" of Color Graduate Students in Higher Education. *International Journal of Multicultural Education*. 19. 10.18251/ijme. v19i1.1259.
- 10) Allen, Aerielle, "On Being Woke and Knowing Injustice: Scale Development and Psychological and Political Implications" (2020). *Doctoral Dissertations*. 2607.
- 11) Kanai, A., & Gill, R. (2020). Woke? Affect, Neoliberalism, Marginalized Identities and Consumer Culture. *New formations*, 102, 10-27.
- 12) Caldera, Altheria (2018) "Woke Pedagogy: A Framework for Teaching and Learning," *Diversity, Social Justice, and the Educational Leader: Vol. 2: No. 3, Article 1*.
- 13) Barker, R. L. (2008). *The social work dictionaries*. Washington, DC: NASW Press.
- 14) Gerdes, Karen E., et. al., (2011). Teaching Empathy: A Framework Rooted in Social Cognitive Neuroscience and Social Justice, *Journal of Social Work Education*, Vol. 47 No. 1 (Winter 2011), p.110.
- 15) J. Rueda and F. Lara, (2020). Virtual Reality and Empathy Enhancement: Ethical Aspects, *Front. Robot. AI*, vol. 7, no. November, pp. 1–18, Doi: 10.3389/frobt.2020.506984.
- 16) A. Segal, K. E. Gerdes, C. A. Lietz, M. A. Wagaman, and J. M. Geiger, *Assessing empathy*. Columbia University Press, 2017.
- 17) S. Pratte, A. Tang, and L. Oehlberg, "Evoking Empathy: A Framework for Describing Empathy Tools," in *Proceedings of the Fifteenth International Conference on Tangible, Embedded, and Embodied Interaction*, 2021, pp. 1–15.
- 18) R. Chen, A. L. C. Fung, and A. Raine, "The cognitive, affective, and somatic empathy scales (CASES): Cross-cultural replication and specificity to different forms of aggression and victimization," *J. Pers. Assess.*, vol. 103, no. 1, pp. 80–91, 2021.
- 19) Aqlan, Faisal & Zhao, Richard & Lum, Heather & Elliott, Lisa. (2019). Integrating Simulation Games and Virtual Reality to Teach Manufacturing Systems Concepts. 10.18260/1-2--32991
- 20) É. E. Villalba, A. L. S. M. Azócar, and F. A. Jacques-García, "State of the art on immersive virtual reality and its use in developing meaningful empathy," *Comput. Electr. Eng.*, vol. 93, p. 107272, 2021.
- 21) É. Estrada Villalba, A. L. San Martín Azócar, and F. A. Jacques-García, (2021). State of the art on immersive virtual reality and its use in developing meaningful empathy, *Comput. Electr. Eng.*, vol. 93, no. July, 2021, doi: 10.1016/j.compeleceng.2021.107272.
- 22) J.A. Fisher, (2017), *Empathic Actualities: Toward a Taxonomy of Empathy in Virtual Reality*, *Lect. Notes Comput. Sci (including Subser. Lect.Notes Artif. Intell. Lect. Notes Bioinformatics)*, vol. 1069 LNCS, pp. 233-244. Doi: 10.1007/978-3-319-71027\_19.
- 23) X. Hu, V. Nanjappan, and G.V. Georgiev, (2021). Seeing from the users' eyes: An outlook to virtual-reality based empathic design research, *Proc. Des. Soc*, vol.1 no. august, pp. 2061-2610, doi: 10.1017/pds.2021.521.

- 24) M. Andrejevic and Z. Volcic, (2020). Virtual Empathy, *Commun. Cult.Crit.* vol. 13 no.3, pp.295-310, doi: 10.1093/CCC/TCZ035
- 25) M. AlBasri, (2020). Learning Empathy Through Virtual Reality: A Mixed Methods Study, <https://dash.harvard.edu/handle/1/37366065>
- 26) C. Papadopoulos, G. Kenning, J. Bennett, V. Kuchelmeister, N. Ginivan, and M. Neidorf, (2021). A visit with Viv: Empathising with a digital human character embodying the lived experiences of dementia, *Dementia*, vol 20 no. 7, pp. 2462-2477, doi: 10.1177/1471301221998888
- 27) E. Dyer, B.J. Swartzlander, and M.R. Gugliucci, (2018). Using virtual reality in medical education to teach empathy, *J.Med. Libr.Assoc.*, vol. 106, no. 4, pp. 498-500, doi: 10.1016/j.nedt.2021.104868
- 28) C. Plotzky et.al, (2021). Virtual reality simulations in nurse education: A systematic mapping review, *Nurse Educ. Today*, vol. 101, no. December, doi: 10.1016/j.nedt.2021.104868
- 29) P. Bertrand, J. Guegan, L. Robieux, C.A. McCall, and F. Zenasni, (2018). Learning Empathy through Virtual Reality: Multiple Strategies for Training Empathy-related Abilities using Body ownership illusions in embodied virtual reality, *Front. Robot, AI*, vo. 5 no. MAR, pp. 1-18, doi: 10.3389/frobt.2018.00026
- 30) R.G. Roswell et al., (2020). Cultivating Empathy through Virtual Reality: Advancing Conversations about Racism, Inequity, and Climate in Medicine, *Acad. Med*, pp. 1882-1886, doi: 10.1097/ACM.0000000000003615.
- 31) M. Brydon et al., Virtual Reality as a Tool for Eliciting Empathetic Behaviour in Carers: An Integrative Review, *J. Med. Imaging Radiat. Sci.* vol. 52, no. 3, pp.466-477, doi: 10.1016/j.jmir.2021.04.005
- 32) Farmer and L. Maister, (2017) Putting Ourselves in another skin: using the plasticity of self -perception to enhance empathy and decrease prejudice, vol 30, no.4 Springer US.
- 33) Patane et al., (2020). Exploring the Effect of Cooperation in Reducing Implicit Racial Bias and Its Relationship with Dispositional Empathy and Political Attitudes, *Front Psychol.* Vol. 11, no. October, pp.1-12, doi: 10.3389/fpsyg.2020.510787.
- 34) Priker and A. Dengel, (2021). The Potential of 360<sup>o</sup> Virtual Reality Videos and Real VR for Education- A Literature Review, *IEEE Comput, Graph. Appl.*, vol. 42, no.4, pp. 76-89, Doi: 10.1109/MCG.2021.3067999.
- 35) M. Slater et al., "The Ethics of Realism in Virtual and Augmented Reality," *Front. Virtual Real*, vol. 1, no. March, pp. 1–13, 2020, doi: 10.3389/frvir.2020.00001.
- 36) Dionysus, "Storytelling in a frameless screen: Screenwriting for VR and AR at Pentridge Heritage Precinct," *Australas. Assoc. Writ. Programs*, no. 62, pp. 0– 11, 2021.
- 37) D. Fox and I. G. Thornton, "The IEEE Global Initiative on Ethics of Extended Reality (XR) Report: Extended Reality (XR) Ethics and Diversity, Inclusion, and Accessibility," New York, 2022.
- 38) D. Hawes, "Using Virtual Reality to Improve Learning Mindsets and Academic Performance in Post-Secondary Students by," 2022.
- 39) Marjan, "Virtual Empowerment: An Immersive Experience and Visual Narrative in the form of sociopolitical fiction," UC Santa Cruz, 2020. [Online]. Available: <https://escholarship.org/uc/item/0jx2107r>
- 40) Adanin, "Students' Attitudes and Intentions of Using Technology such as Virtual Reality for Learning about Climate Change and Protecting Endangered Environments," Ohio University, 2020. [Online]. Available: <http://dx.doi.org/10.1016/j.ndteint.2014.07.001> <https://doi.org/10.1016/j.ndteint.2017.12.003> <http://dx.doi.org/10.1016/j.matdes.2017.02.024>
- 41) W. Bonime, "Super future: How global super minds can use immersive experiences to build a positive future," Massachusetts Institute of Technology, 2021.