Virtual reality in legal education : Challenges and possibilities to transform normative knowledge

Verdu Sanmartin, Amalia

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7 Virtual reality in legal education. Challenges and possibilities to transform normative knowledge

Amalia Verdu Sanmartin and Johanna Niemi

7.1 Introduction

The digital economy is changing the economic, political, and societal landscape. In Chapter 3, Mateusz Biernacki, Agata Luśtyk, and Rafał Wisła explain how digital economy creates a dynamic combination of various dimensions,

> such as economic aspects (changes in the nature of resources, production factors and economic processes), the area of technology (technological progress viewed from a macroeconomic perspective vs. technological innovation viewed from a microeconomic perspective), regulatory measures (challenges facing regulators, new risks affecting the institutional order) and sociological phenomena (changes in social functioning principles, attitudes towards work and human relations).

The conventional way of perceiving these dimensions involves a linear one-to-one linkage, with the third dimension usually omitted. However, several scholars representing various disciplines argue that the dimensions constituting our world are entangled and have an embedded relational nature. Donna Haraway (1997) and Humberto Maturana (2000) reveal the relational nature of humans, non-humans, technologies, and the environment in a becoming process of knowledge and meaning. These entanglements matter and foreseeing their implications requires understanding their embeddedness.

To understand the complex holistic relationship of these realms, we should explore the convergence of advancements in epistemologies, technologies, and society (Cloatre, 2015). The relational implies a comprehensive approach. Legal challenges posed by the digital economy are difficult to solve with current legal tools and require more complex thinking. Latest theoretical trends, such as new materialism (Dolphijn & van der Tuin, 2012), actor-network theory (Latour, 1996), post-human, and decolonial approaches, underline the need to analyse phenomena as intra-actions (Barad, 2007) of different dimensions, thus encouraging interdisciplinary analysis. The focus is on materiality, deeply challenging normative knowledge, and on rethinking

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the world from a perspective questioning binary Western thought. These latest ethic-onto-epistemological approaches serve to rethink legal education in a digital era and to address the human and non-human from a relational perspective in teaching (Revelles Benavente & Cielemecka, 2016).

Digitalization poses a new challenge to legal professionals, to society, to education, and, thus, to knowledge. When it comes to legal research, many lawyers are still using methods that were popular in the past. This means that they dedicate a lot of time to looking through case law, which can be time-consuming and often inefficient. AI-based software can help to improve the efficiency and accuracy of legal research, and therefore, it is important not only to explore its potential uses but also to train law students in its application. Some observers recommend law students to learn coding or programming. While this may be an advisable option for some, we believe that the transformation of the legal profession goes deeper than this, since future jobs will require skills in designing feasible digital systems and regulations that also consider the requirements of law and justice. Law faculties have traditionally trained lawyers to solve problems known before digitalization, but technology is rapidly transforming the world and creating new legal challenges and relations. While some researchers attend conferences on different intersections of law and the digital, there has yet to be enough fundamental analysis of how the latter affects epistemology and the law faculty curriculum. Digital technologies have a profound impact on education, with their novel approaches such as e-learning, mobile learning, and learning analytics (Zhu et al., 2016). The rising digital society requires new legal skills, besides social interaction between lawyers, IT, and social scientists (Mähönen et al., 2021).[1] How should we train law students for these new demands that also involve new modes of thinking?

In this chapter, we explore the intersection between the digital, education, and law to grasp how they challenge each other while coming together in a continuous becoming process affecting the substance of law, the legal profession, and education. Using diffractive reading (Barad, 2014; Hill, 2017; Merten, 2021), this chapter examines a variety of epistemologies focusing on how legal education should embrace the digital as an avenue of training future legal professionals. Furthermore, technology is examined for its potential to foster awareness of the relational embeddedness of the world and encourage people "to think anew, through remaking the world materially and relationally" (Hickey-Moody & Page, 2015, p. 1). Particular emphasis is placed on virtual reality (VR) and its possibilities for altering perceptions about legal dogmatic image of thought. While not addressing new legal challenges posed by that technology, this chapter offers insights into the intra-actions between the non-human and human and the physical and non-physical world.

The authors organize the chapter so that Part 2 introduces VR, Part 3 discusses how VR transforms the classroom into a smart learning environment, and Part 4 explores the possibilities of using VR in legal education. We consider how the use of VR in legal education can help to teach students to

re-create the physical and legal world, challenge law's immateriality, learn and traverse critical thinking, and develop new ways of thinking that will allow them to understand the digital transformation challenges and their repercussions in law. In this chapter, we propose an initial understanding of VR capability promoting experiential thinking in legal education. In doing so, we are aware of the need to make a critical analysis of the many ethical issues that must be addressed before VR is fully implemented.

7.2 What is virtual reality?

7.2.1 Tracing back real virtuality

VR is not new. For more than 50 years, scientists and engineers have been working on achieving immersive experiences which are known as extended reality (XR), VR, and augmented reality (AR).[2] In the 1950s, the filmmaker Morton Heilig and Hugo Gernsbac were credited with inventing the multisensorial theatre experience known as Sensorama (Sherman & Craig, 2003), and *Teleyeglasses*, respectively. These head-mounted devices were similar to a glass-formed portable TV and facilitated an immersive experience via dual and stereoscopic TV image. In 1965, Ivan Sutherland published his article "The ultimate display" introducing the *Sword of Damocles* (Sutherland, 1965). Sutherland together with David Evans would go on to write software for creating virtual worlds with 3D images and stored data. In 1966, Thomas A. Furness's flight simulator would become a major development for VR.

Tony Zimmerman's (data gloves) and Jaron Lanier's (data program) collaboration in the 1980s provided foundational elements for VR development, as put by Michael Heim (2011). Simultaneously, Myron Krueger created a device for art interaction (Kreuger, 1993). The development of the gaming industry started during the same period. The latest breakthrough came in 2012 with the headset device OCULUS by Palmer Luckey. Meta bought OCULUS in 2014, which, besides the improvement of fast connections allowing 3D computer-based images, moved VR technologies forward (Harris, 2019). With 5G now, 6G connectivity and the mass commercialization of VR glasses soon, the technology is spreading beyond the gaming industry to other realms. Such glasses as The Oculus, Valve, HTC, and Microsoft are flooding the consumer market not only for gaming but also for professional and educational use. The metaverse is growing, and tech companies are investing heavily in this area as evidenced by the upcoming entry of Apple in the metaverse with the planned release of a headset combining AR and VR.

7.2.2 Virtual reality today

There is much controversy surrounding the definition of VR. Over the past decade, several authors have provided various definitions, some emphasizing

the use of a headset for interaction or immersion in an artificial world, others combining different elements. Fuchs, one of the many scholars working on the VR definition, explains that the definition differs depending on the purpose and the functional or technical elements of VR (Fuchs et al., 2011). Others, like Burdea and Coiffet (2003), define VR as a combination of interaction, immersion, and imagination. Sherman and Craig (2018) define VR as the combination of a virtual world, sensory feedback, immersion, and interaction. The different definitions show the three main paradigms that form what is understood as VR: realism, immersion, and interaction (Tori et al., 2006).

In a combination of these approaches, the definitions refer to a person using a head-mounted display connected to a computer that creates an immersive simulated experience. Burdea and Coiffet's (2003) approach indicates the relation in VR to non-human elements such as the avatar and the metaverse. Avatars act as virtual representations of humans who interact with each other within the 3D metaverse. This simulated environment appears to be real when experienced through a device, producing an immersive experience that merges the physical and the virtual world (Sparkes, 2021). VR is also a platform that can be used for professional, cultural, social, and economic activities (Kye et al., 2021).

The human is immersed and interacting in a non-physical/non-human environment. The experience is a sense of presence, of actually "being there", in the world of VR or AR (Barfield, 2016). The type of this human/non-human interaction with and within the 3D environment is what divides VR into distinct categories: non-immersive, semi-immersive, full immersive, or a mixture of them. *Non-Immersive VR* is often not viewed as VR due to users remaining conscious of their surroundings. Interaction takes place via a computer screen without using any other devices and commonly entails 360 videos for either business use or professional instruction. *Semi-Immersive VR* provides users with a partial immersive experience in a cube-shaped space that consists of four screen sets: three screens for the walls and one for the floor. This experience requires a device designed for tracking the user's movements. *Fully Immersive VR*, such as created by Oculus headsets, is considered to be full VR. However, this is not full immersion in terms of providing skin and olfactory sensations. There are ongoing efforts to develop materials for sensory stimulation and simulation engaging these two senses. Despite this limitation, users of the current full-immersion VR still experience a sense of immersion in the artificial environment and being out of the physical world. Therefore, immersive VR involves diverse types of immersion, as noted by Björk and Holopainen who divide the immersive experience into sensory-motoric, cognitive, and emotional and add a fourth one termed spatial immersion referring to such VR immersion in which the simulated computer-based environment is perceptually convincingr (Holopainen & Björk, 2003).

VR has evolved into AR using computer-generated perceptual information to provide an immersive experience on its own or in combination with VR.

AR does not replace the world entirely; it supplements computer-generated perceptual items of information and interacts with them. AR requires the use of special glasses like VR, and it can be combined with VR to create mixed reality (MR). The difference between this and other digital interconnections lies in the emotions experienced by the user (Dieck et al., 2021).

7.3 VR as a tool of Smart Education: the relationship between education and the digital

Now, the digital realm has become an active content creator and is causing educational methods to move from the first timid steps into online education with tools, such as Moodle, to interactive digital tools and gaming. The emergence of smart education compels us to rethink our approaches to learning and knowledge creation, as it engages universities and research institutes in new paradigms of teaching and learning by intertwining teaching/learning with digital technologies.

New concepts pop up in relation to smart education, such as smart pedagogy, smart environment, and smart learning (Meng et al., 2020). Zhu, Sun and Riezebos (2016) suggest that smart education is a shift from traditional teacher-centred pedagogies towards more learner-centred methods, making use of adaptive and interactive technologies. Coccoli et al (2014). say that it is "education in a smart environment supported by smart technologies, making use of smart tools and smart devices" (2014, p. 1008). Additionally, Lee et al. (2014) underline the potential applications of intelligent technologies aimed to support online collaborative activities and create an active learning environment in which emerging technology tools promote knowledge sharing between learners.

Research has shown that the relationship between devices and technology requires the development of smart pedagogies, that create a smart learning environment for smart learners (Zhu et al., 2016), and education adaptive to students' needs (Bajaj & Sharma, 2018). Smart education appears as a novel approach in which digital intertwines with education and knowledge. The research shows that smart education in combination with smart pedagogies improves high-order thinking skills (Julius et al., 2018). However, this integration of technology and learning is not sufficiently implemented in legal education (Rabadi & Salem, 2018).

Smart education is now incorporating VR, as shown by the EDUCAUSE Horizon Report (2020), with very positive results. Kavanagh et al. (2017) conducted a systematic review that revealed four main applications of VR when used in the educational setting: simulation, training, accessing limited resources, and distance learning. By utilizing immersive VR, students are able to interact more effectively with knowledge, and those living in remote locations with limited access to education can also benefit from its use. However, the relationship between technology and education requires specific frameworks due to potential ethical concerns (Zhu et al., 2016; Meng et al., 2020;

Fischer et al., 2021). Cai et al. (2021) propose a blended approach which would maintain self-efficacy and individuality while addressing pedagogical aims of high-order skills and deep learning alongside community knowledge building and transformation in smart education contexts (Cai et al., 2021).

7.4 Technology, law, and education: from a linear one-to-one connection to becoming together

7.4.1 One-to-one relationships

In the last 20 years, digital technologies have rapidly progressed and spurred a lively interdisciplinary debate. Richard Susskind (1996) predicted that lawyers would communicate via email which, though revolutionary at the time, has since become commonplace. On top of all these changes, the production of knowledge and the acquisition of information are leaving traditional sites; the Internet and digital technologies are enabling self-learning and new knowledge.

The relation between law and technology is shaped by a one-to-one binary discourse about the constraining and fostering role of each other in this mutual relation. The result is usually the production of norms, principles, standards, and new legislation, ignoring the nature of knowledge technology. The legal response to technologies was first focusing on the problems of privacy and data, such as the implications of Big Data and AI for privacy, anti-discrimination, due processing, and the rule of law, and resulted in the adoption of "digital" regulation which emphasizes processes of writing that resemble drafting a legal text (Lezaun, 2012, p. 38). The latest growing use of AI shifts the focus towards its ethical implications and the question how it may alter the practice of law.

In the legal realm, digital tools have a poor image and are blamed due to their negative effects. However, the effects of using digital tools may merely be reflections of the existing discriminatory and biased practices in society. Since technology deals with real data, the outcome is merely a reflection of the society we live in and only results in exposing the normative flaws that sustain discriminatory and biased legal practices (Whittaker, 2019). The ethical implications of digital technologies led to the emergence of trendy AI ethics which is a rebirth of the concerns and critiques already expressed by feminist, gender, critical, race, colonial, and decolonial theories, among many others, over the last decades. But still, the solution offered at the EU level is more new legislation (European Commission, 2022).

Richard and Daniel Susskind (2022) explored the one-to-one relation between the legal sector and technologies, forecasting an increase in the demand for digital dispute resolution, replacing traditional courts with online resolution systems. LegalTech tools are currently being implemented to scrutinize court verdicts,[3] and to review case material (e.g. Westlaw Edge). Fears are voiced that algorithms and machines will replace the work of legal

professionals such as lawyers, juries, and judges; however, a general change and transformation of legal jobs and services reveals interesting prospects for individuals working in the legal sector rather than a decline in jobs. Therefore, law faculties must begin a curricular transformation to prepare law students to thrive in 21st-century society. With the millennial generation of digital native students engaging in new ways of learning (Manuel, 2002), different skills are required than those prior to digitalization. Consequently, legal professionals must learn new tools and skills in order to adapt to evolving legal problems and gain the knowledge needed for success.

In 1936, Fred Rodell said "There are two things wrong with legal writing. One is style; the other is content" (Rodell, 1936), asserting that the traditional style and content of legal writing were not in sync with society and professional needs. Despite these issues, legal education continued to rely upon the written text as indubitable truth and focus on the legal style. With the emergence of online education offering online courses, intensified by the Covid-19 pandemic, technology has been introduced into law faculties in the form of Mass Online Courses, Moodle courses, and teaching with Zoom, Teams, Skype, etc., yet this has not necessarily resulted in pedagogical innovation. Alimisis states in his comments on robotics education that current uses of technology are simply reinforcing old ways of teaching and learning. She critically argues, "most uses of technologies in schools today do not support 21st-century learning skills" (2013, p. 66). Interactive teaching methods such as flipped classrooms and simulations have been left to stagnate. Amidst this digital knowledge era, much remains unchanged within law faculties, predominantly due to an ongoing reliance on "legal writing style".

Legal education in the European context has been characterized as banking education, according to Paulo Freire (1974). Deleuze (1994) further explains that this banking education fails to promote critical and creative thinking and reinforces dogmatic thinking. Banking education relies on the belief that thinking means representational repeating, reinforcing, and reifying dogmatic thought. However, as Gandorfer and Ayub (2021) argue, "Thought is relational, non-representational, and collaborative" (2021, p. 2). There is urgency for integrating the ethics of thought in the co-creation and transmission of knowledge to achieve "both sense-making and sensing in the making" (Gandorfer & Ayub, 2021, p. 1). Higher education has a political dimension (Barrier et al., 2019), and Diana Laurillard described teaching in higher education as fundamentally being "a rhetorical activity, persuading students to change the way they experience the world through an understanding of the insights of others" (Laurillard, 2013, p. 23).

The problem of the rhetorical teaching/learning method in law, as revealed by pedagogical approaches, is the difficulty in achieving deep learning, which prevents the acquisition of higher order skills such as critically examining texts or making connections with other ideas and knowledge (van Dongen & Kirschner, 2020; Wang et al., 2022). A power relationship between academic, experiential, and everyday knowledge underlies banking education.

Written texts and norms "impose" this hierarchy, curbing thoughtful enquiry and supressing the importance of experience-based insight and relations in producing knowledge. Alfred Whitehead recognized this hierarchical method of legal thought when he said: "In all systematic thought, there is a tinge of pedantry. There is a putting aside of notions, of experiences, and of suggestions, with the prim excuse that of course we are not thinking of such things" (1938, p. 2). With no interaction between such modes of thought like sensing or feeling (Manning, 2009), a dogmatic image remains fixed. The dogmatic image of thought should be replaced in order to recognize the violence implicit in representational thinking. Legal systems are presented as independent from social, cultural, political, economic, and especially digital systems. Additionally, law is traditionally viewed as an established and authoritative symbolic representation of truth. Students during legal studies learn to refer to the world using this legal representation which leads to the reification of symbols.

Students are still largely experiencing legal education as "learning by heart", despite the implementation of several projects aimed to introduce new methods such as flipped classrooms, game-based learning (GBL), and problem-based learning (PBL) (Knight & Wood, 2005; Kapralos et al., 2015). These methods have produced positive results in integrating experiential knowledge and stimulating active student involvement, yet they are usually restricted within traditional environments not encouraging to transgress the disciplinary boundaries of thought. Therefore, alongside lectures, the modern Socratic method is still a preferred teaching style in legal education. This method enables a dialogue among the students, advancing critical and creative thinking aimed to discover solutions for the world's legal problems. However, there is the risk of reifying legal symbols and norms, since dialogues are often limited to the definition of concepts from a positivist perspective. In this way, students become familiar with predetermined court-made interpretations and are not encouraged to search for creative alternative solutions. Hence, the application of knowledge becomes a narrow exercise of discerning a pre-settled matter. The modern Socratic method as used in current legal education ends up in a right and normative reconstruction of the normative truth and, thus, teaching students to think like a lawyer, which entails learning how the world is and should be experienced. The modern Socratic method is infused with the very same pedantic truth earlier exposed by Whitehead (1938), promoting normative representational thought.

Recognizing the relationship between education, technology, and society, as well as understanding their relational rather than representational nature, is critical for improving students' understanding of the role and effects of law (Maharg, 2016). There is an inner relational quality within the system and in-between the systems. Investigations into the "Knowledge Practices" that are present within and between these systems can help to achieve this aim by highlighting their co-production through contingent entanglements (Weidemaier & Gulati, 2013). Despite the relational nature of thinking/acting, the

digital influence on education is limited to a one-to-one relation, thus placing emphasis on the acquisition of IT skills and the sourcing and handling of information now freely available in a vast amount online. Through incorporation into blended teaching curricula, VR can become a transformative technology capable of heightening attention to non-representational knowledge involving situated learning (Maharg, 2001, 2016). Many studies indicate the effectiveness of VR in education across a myriad of disciplines including medicine (surgery training) (Nassar et al., 2021) and law, in the form of legal case management simulations and visualizations of legal actions (Baksi, 2016). VR has the potential for providing a new form of access to knowledge previously disconnected from education. It can foster collaboration across disciplines and represent complex connections, aiding in the connective understanding of laws and the legal process. VR enables students to experience law concepts in a way that is both realistic and interactive. This allows them to better understand the way the law works and its context. Additionally, robots can be used to create online tutorials for students – making learning easier than ever before.

Students' experience of living in VR as well as in the physical world necessitates a re-evaluation of the relationship between materiality, relationality, and representation in both worlds. Knowledge acts as the catalyst for investigating this entanglement between technology, education, law, and VR which enables us to go beyond a mere simulation and explore the hidden interactions influencing knowledge. The growing ubiquity of digital aspects in other parts of life brings up further questions with regard to law, VR, and humanity.

7.4.2 Becoming together

Mobile learning and e-learning are the precursors of crossing the temporal and spatial boundaries in teaching/learning (Looi et al., 2009). Previous research on smart education revealed that effective teaching/learning strategies can improve thinking skills (Julius et al., 2018). Zhou's smart education framework (Zhu et al., 2016) includes such vital elements as teaching presence, technological presence, and the learner's presence. Within this framework, a focus on the construction of knowledge enables us to understand how knowledge reproduces, and what are the possibilities for transformation (Berry & Fagerjord, 2017). Rethinking this relationality from a new materialist perspective exposes the power relations embedded in the binaries pervading the transmission of normative knowledge, like: teaching vs learning, teacher vs student, nature vs culture, physical vs non-physical, and human vs non-human. The becoming-together approach highlights the role of what is sensible but not represented or, as Deleuze words it, what is between the actual and the virtual (Deleuze, 1994).

A diffractive reading (Barad, 2014; Bozalek & Zembylas, 2017; Merten, 2021) of pedagogical and critical approaches in education, alongside digital

technologies and law, allows us to analyse and understand the becoming together of all these dimensions. This task stems from realizing that, when thinking as a lawyer, representational and critical thinking alone are insufficient for future legal professionals in the technology-mediated 21st century. The modern approach to the relationship between these elements leads to the transmission of legal knowledge within a modern framework with some touches of the postmodern, which in a blended world seems inadequate. The postmodern element contracts to fit within the boundaries set by the modern framework.

Modern boundaries are challenged by the non-human elements and their entanglement with human subjects. However, the modern framework rejects these entanglements and reproduces itself through text-based academic and legal knowledge and through the fixity characteristic of the written text. This fixity attaches to written texts, privileging them in legal education, and marginalizing messages that are not written. Nonetheless, the actual/virtual becomes materialized when the digital comes in. The non-human is entangled with the human, producing new phenomena; however, the transformative possibilities brought in by the non-human evaporate due to the insistence on complying with the modern principles embedded in the deeper layers of law and education. The erosion of the boundaries between law and other practices requires engaging with the materiality of meaning in the transmission of knowledge. This would entail openness to reimagining knowledge ontologies to understand the doing of theory and the effect of the presupposed (Barad, 2007). Reimagining law and visualizing the power/knowledge co-constitution, the entanglement with the digital creates the opportunity to explore the embeddedness of bodies, nature, space, and time in the material-semiotic entanglement of law before entering the process of thinking as a lawyer. The digital realms reconfigure the modern boundaries, offering a crack from which we can reimagine and rethink knowledge while experiencing the entanglement between the physical and non-physical. Post-human, postmodern, and new materialist pedagogies of inclusion and collaboration offer a breakthrough, replacing representational thinking and binaries. Gilbert (2005) further solidified this opinion by verifying that traditional locations for gaining knowledge are expanding further onto such platforms as the Internet.

Laurillard (2013, p. 27) has explained that academic knowledge is reliant on symbolic representation "or any symbol system that can represent a description of the world and requires interpretation": legal knowledge relies on the text and language for interpretation within a specified legal framework delimited by inherited implicit assumptions. Successful learning is possible only if it is related to the given context of action. Through VR, the distinction between knowledge and object is questioned, as well as that of written representation and law. VR leads to a new mentality concerning the body, emotions, and how they go hand in hand with theory, while maintaining a focus on the words used in legal practice – uncovering any unseen undefined issues

within language. The body and emotions are entangled when putting theory, the text into practice, revealing the silences and absences of the text alongside the materiality of the words. The experiential turn is entangled with the linguistic turn, opening the possibility to understand the agency of the intra-actions, the "other" matter in the construction of knowledge. Knowledge as the intersection point of law, technology, and education is, from a new materialist perspective, embedded and becomes another intra-acting element. This understanding creates another node where technology, law, and education meet which consequently changes academic views of everyday knowledge.

Constructivist theories of learning seem to underpin Bloom's taxonomy of knowledge and learning in university pedagogics, where students are viewed as active participants in the learning process. Educators recognize that the transfer of knowledge is not solely responsible for educating the student; rather, students actively seek, accumulate, critique, and construct knowledge (Anderson, 2005). Anderson (1991, 2010) also notes that higher levels of learning require an ability to reflectively critique both subject matter and the process applied. Nonetheless, it is believed that in legal education, students must initially learn the content of law before being able to critically assess it. Constructivist elements tend to be found at the Master's level, at which courses with a critical approach are often elective additions to the mandatory curriculum. However, courses framed as critical approaches to law form part of wider shifts in education, where learning outcomes and goals focus on skills, and teachers are seen as facilitators rather than lecturers (Lemaître, 2018). Notwithstanding these shifts, the teacher is the primary active agent leading the learning process and defining the learning outcomes, as regards both content and skills, yet forgetting the constructive elements.

Constructivist pedagogy and VR advocate a radical shift towards a system in which students are seen as active participants in the construction of knowledge and as actors responsible for their own learning. In a smart education framework, constructivist pedagogies are explored in VR to overcome the limitations encountered by traditional teaching and promote deeper learning. The goal of research on smart education is to develop methodologies and frameworks assisting in purposeful planning of courses that include the effective use of technology from the beginning of study. To utilize the full potential of VR, the students should be seen as active participants in knowledge production early on. It is important to acknowledge their agency within the world (Lemley & Volokh, 2018; Jian et al., 2019; Mohamad et al., 2020; Cho et al., 2021).

Post-human and new materialisms pedagogies seem to deconstruct the power hierarchies implicit in the Western binary thinking (Baofu, 2011; Gough, 2013; Kosofsky Sedgwick, 2003; Sherbine, 2015; Revelles Benavente & Cielemecka, 2016; Carstens, 2019; Egea et al., 2020). Thus, the first binary to break is that of teacher/student. Students are actively encouraged to work together in the metaverse, with the aim of facilitating peer interaction and ultimately producing a collaborative environment in which both

academic and experiential knowledge is shared by all parties involved. Teachers' hierarchical position diminishes as students share their digital skills and situated knowledge with their teacher. Informal knowledge is entangled with academic knowledge (Prensky, 2007). The role of the teacher shifts towards that of facilitator, while students practice and transform academic knowledge as they engage with each other. Passive reception of information is transformed into learning by being, rather than doing, and this shows how academic and experiential learning intra-act in creating and transforming knowledge. Students provide their individual experiential knowledge integrating it with others' and academic knowledge (Lee& Reeves, 2017). VR can activate silent voices and perspectives, encouraging visual learners or shy students to become more participative and motivated (Herrera et al., 2018).[4] Research indicates that immersive and non-immersive VR can improve student focus, engagement, and interest in the subject of study. Simulations have shown that students become bolder when given a role, often overcoming their shyness. However, the lack of authenticity minimizes the effectiveness of simulation learning (Daly & Higgins, 2011). Through immersive VR, not only are students provided with an engaging learning experience but also with an environment that is highly interactive and realistic. This lends itself to enabling a deeper understanding of complex concepts and providing learners with more comprehensive knowledge. These simulations are often controlled and interactive, allowing students to interact with the environment and experience the relevant scientific concepts in a simulated environment. Furthermore, VR can be used to provide students with a virtual tour of a location or process, immersing them in a realistic environment. The integrated use of technology is a not just a mediated tool; but it also allows us to reflect on how the virtual, the non-human in general, is embedded in and transforms law-making (Lezaun, 2012; Cloatre, 2015).

The deployment of power/knowledge of law through legal education is a journey from imparting knowledge to enabling student's learning. In both stages, there is an ontological transmission of academic knowledge. However, the disembodied nature of thinking in, of, and about law prevents individuals from visualizing material entanglements and the ontological-epistemological nature of this knowledge (Barad, 2007). In teaching law, it is essential to comprehend how the meaning behind law shapes laws and how such laws will in turn continue to shape society. Thus, questioning what law does and will do becomes vital when making sense of why certain laws are presupposed in certain ways. Reflection on such questions with law students may sound utopian, but utopias are possible in a digital environment giving the opportunity to understand becoming processes and invisible relational entanglements.

The Research Handbook on the Law of Virtual and Augmented Reality (Barfield & Blitz, 2018) elucidates the immanent obstacle that accompanies the confluence of the physical and the virtual world. Current legal theory belongs to the physical world and needs reinterpretation or rethinking to

address the virtual world. The union of the online universe and the tangible plane equivalates to the amalgamation of the human and the non-human; we can be ourselves or our avatars. Therefore, the established legislation on injuries, amenities, crimes, responsibilities, adjudication, etc. may encounter many future challenges in the virtual world.

When engineering a VR environment for legal education, we can develop principles that will support attaining an intuitiveness of the intrinsic mechanics of the law and "what the law does". For this purpose, the design principles of a VR law course may focus on:

1 Knowledge production and transformation: experiential and academic knowledge entanglement. This allows us to understand the shift in knowledge production and the future challenges.
2 Interdisciplinarity of knowledge: The simulated environment enables practicing how to solve problems and situations with others and in collaboration with students with different experiential and academic knowledge.
3 Theoretical perspective entanglement with practice: to play and understand intersectionality, situated knowledges, experiences, and identities.

These principles help to achieve deep learning and heightened attention to the ethics of thought using the *matterphoric* (Gandorfer, 2020) possibilities offered by the virtual realm. The entanglement of the digital/physical elements in a simulated environment enables an understanding of the links between experiential and academic knowledge from a multidisciplinary perspective. This results from context-based learning (CBL)[5] and crowd learning[6] that promote deeper learning through exposure to other users, students, and learners that goes beyond GBL due to its realistic challenges experienced through body, senses, emotions, and feelings (Rose, 2012; Kalisz, 2016; Plass et al., 2020). The role of the body in the act of thinking is widely acknowledged, yet rarely considered in the academic world. Embodiment and situatedness rarely cross the line that divides academic and experiential knowledge. "Thinking like a lawyer" requires detaching oneself from personal experiences, making neutral analysis and interpretations of various situations. Avatar technology enables students to explore different identities, backgrounds, and layers of intersectionality, and their effects on others. Through engaging education, technology, and students' multiplicity, tools are provided to promote intrinsic motivation while highlighting individuals' connection with the group. A 3D simulated environment creates a space where to comprehend the interconnectedness of the world. Students integrate themselves with this non-physical domain in order to solve interdisciplinary problems by experiencing rather than speculating or reading an authoritative text. Furthermore, digital entanglement with law and education highlights embodiment by bringing into focus the act of thinking that is often neglected. The digital entanglement with law and education allows bringing in embodiment and situatedness while experiencing its implications in the very act of

thinking. Simulation is a key factor within VR which enables all senses to become engaged in an experiential learning event, thus opening diverse ways of learning and implementing practical experiences. This demonstrates the role that the body plays regarding understanding, interpreting, and deciding issues at hand; emotions and feelings are also employed in order to deepen the understanding of the knowledge-production processes associated with bodily engagement. The incorporation of digital technologies allows us to work with tools that can be adapted to different learning experiences while promoting collaboration.[7] VR offers experience-based teaching/learning that encourages engaging with the issue in question rather than assimilating and memorizing: it helps to experience it.

7.5 Conclusion

With technology advancements, the legal world has begun to embrace the concept of smart education. Smart education has opened up new possibilities for the transformation of knowledge and the building of a better future for society.

VR usage in education has both positive and negative implications. Nevertheless, digital technology is an ever-increasing presence in modern society, and it is important to research and experience its role at the intersection of education and knowledge. If students wish to stay ahead of the challenges posed by a quickly changing society, it is essential for them to become familiar with advances in technology as well as comprehend how societies evolve. Furthermore, understanding the collaborative creation of knowledge can help students to recognize potential issues, before a legal recourse becomes necessary. Analysis of the potential implications carried by VR technology suggests that it may help to teach legal reasoning and develop problem-solving skills, enabling students to explore theory in practical terms and recognize the interrelation between different legal fields. Further study into this technology is necessary in order to predict potential policy changes, new laws, and educational benefits: to anticipate problems rather than merely react by drafting new legislation which is usually outdated by the time it is enacted.

VR encourages students to explore theoretical materiality of the intertwining physical and non-physical, human and non-human realms, which present not only new legal challenges but also transformative opportunities. VR can be used to assist in teaching students to re-create the physical and legal world as well as challenge the foundations of law, to promote diverse ways of thinking and of understanding digital landscapes from an onto-epistemological perspective. Encouraging them to analyse how virtual worlds shape their experiences, identities, and bodies is undoubtedly a good starting point for understanding, learning, practicing, and experimenting with embodied thinking within the realm of law. Simulations in a VR environment focus on the role of matter and its importance in introducing embodied teaching/learning in a non-human environment. The real and virtual entanglement creates a utopian setting in which

the boundary between subject and object becomes less distinct. VR simulation supplements the written word and exposes the role of spacetimemattering. VR simulations are more than tools to be used for learning; they facilitate an understanding of how law can be transformed by bringing together all aspects of the past, present, and potential future. Students can experience knowledge and challenge ontological binaries. Contesting the human/non-human binary encourages legal professionals to become creators, problem solvers, and thinkers rather than law users and practitioners. Thus, it is critical to equip lawyers with the skills necessary for meeting upcoming challenges and to avoid relying solely upon legal education models from a pre-digital era. Through VR simulations, students have the opportunity to explore alternative approaches to practice while also creating innovative thought processes. This ability gives them agency in reimagining knowledge and transforming education in law as they recognize their potential as active individuals.

Moreover, through the use of matter in immersive VR simulations, students can develop a deeper understanding of the legal environment and its complexities. These simulations go beyond the letter of the law which can often be difficult to comprehend and limited in its application. VR simulations allow students to gain physical and emotional experience of handling a case. Other disciplines than law, such as medicine, already test VR in teaching/learning. Nevertheless, the integration of VR into educational environments is difficult because it entails structural changes and implications. Therefore, it may be advisable to proceed gradually and start integrating VR technology as part of blended education. Testing blended education with VR will also give us enough data and experience to initiate the transition to a future teaching/learning style suitable for present-day students. This testing will also provide safe conditions for integrating non-mainstream ways of thinking. Transformative thinking is possible when we dare give room for other modes of thought.

Notes

1 In "KARVI The evaluation of higher education in law", 2021, an assessment of the Finnish legal education, the employers called for better skills in interaction and communication. They also underlined that lawyers should be forward-looking, not only focused on finding and analyzing problems. See https://karvi.fi/en/general-upper-secondary-education/.
2 XR comprises VR, AR, MR, and haptic reality.
3 See e.g. Lawgeex (2022) that automates contract reviewing process: https://www.lawgeex.com/.
4 There is evidence that the empathic response obtained by a 360 video is more effective than reading case studies. The results of studies on VR impact on student engagement in the learning process show that in more than 60% of cases, students have increased attention, and interest in the subject. Teachers see this technology as the best option for personalized differentiated learning.
5 Context-based learning is an instructional approach that involves students understanding the context of a situation or subject in order to acquire knowledge of

a given topic. This type of learning encourages learners to explore their environment for potential learning opportunities and actively seek out resources pertinent to the material being studied. The use of contextual clues helps learners build connections between new concepts encountered during instruction, allowing them to make meaningful associations with existing information they have previously acquired in addition to attaching practical value beyond mere memorization and rote retention of facts.

6 Crowd learning can be used to create collaborative learning experiences, foster peer learning, support online learning, and facilitate knowledge sharing. Its innovative online educational model harnesses the collective power of members in a community to facilitate learning and knowledge sharing. By having participants from diverse backgrounds collaborate on projects and lessons, crowd learning leverages the strengths of each while eliminating traditional educational hierarchies, such as teachers or experts leading classrooms. This approach allows learners to gain access to resources, perspectives, and methods not typically found within their own circle or sphere of influence which enables deeper understanding and appreciation of various subject matter areas.

7 Adaptive learning refers to technologies that dynamically adjust to the level or type of course content based on an individual's abilities or skill attainment, in ways that accelerate a learner's performance with both automated and instructor interventions.

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