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Review

The Future of Moral Education? Using Virtual Reality Experiences

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Abstract

Historically, moral education has predominantly involved the use of textbooks, films, and in-class role plays. It has also, at times, included the teaching of values and rules, as well as skills aimed at developing compassion. However, theories of morality suggest that moral development also entails fostering an independent understanding of and reflection on moral concepts, rather than merely acquiring knowledge and developing skills. This raises challenges for moral education: what should be taught, and how should it be taught? Virtual Reality (VR) technology has the potential to offer a timely and innovative approach to teaching morality. This article provides a narrative review of recent developments in the use of VR for moral education. VR technology enables users to 'immersively' visualize moral options and the consequences of their decisions. This may allow learners to develop a deeper understanding of the possible moral implications of their actions and provide the flexibility to shape their own moral values. This narrative review specifically focusses on concrete steps and concepts of how digital VR technology might practically be implemented in the classroom to enhance learning experiences.

Keywords: immersive virtual reality; moral education; moral development; classroom activities; digital technology

1. Introduction

Part of being human is to learn about the 'mores'—the accepted conventions and moral standards of the social group and wider society in which one lives. The resulting moral education may be implicit, as one learns from one's family and others what is considered to be morally good and what is considered to be morally bad. Moral education may also be explicit and takes place not only within one's family and one's everyday experiences but also during one's schooling, while it is also often a part of religious education within religious organizations. Digital technologies are increasingly a part of our daily lives and widely used in schools in many countries. However, their use to date for moral education has been limited. The purpose of this paper is to examine the potential for Virtual Reality (VR) technology for moral education.

2. Cultural Breadth and Scope of Moral Education

Moral education is challenging to define and is often assumed to operate at the individual level. However, it has been suggested that it entails learning that is aimed at exerting a purposeful and systematic influence on moral development within society (Cheng et al., 2021). In this sense, moral education can occur across the lifespan, contribute

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to societal benefit, and take place in a variety of settings. Television programs, newspaper articles, blogs, and social media can all contain content that is explicitly or implicitly designed to influence individuals of all ages to adopt certain moral views and behave in particular ways. However, most research on moral education focuses predominantly on the teaching of moral values to children and young adults within institutional contexts.

Harmawati et al. (2022) conducted a review of articles on moral education in schools. They noted that most studies originated from China or the United States, and many described how teachers used moral scenarios to encourage perspective-taking and the development of empathy. Harmawati et al. (2022) concluded that moral education typically focuses on teaching core values such as humanity, culture, nationalism, attitudes towards nature, justice, fairness, empathy, duty, obedience to the law, and emotional awareness, with the aim of shaping the character and identity of a society. They also suggested that a central goal of moral education was to reduce criminal, deviant, and bullying behaviors among young people. However, they identified a significant lack of research on moral skills development and noted the absence of studies incorporating digital technology.

Shi et al. (2023) conducted a review of thirty years of research on moral education in China. They observed that Chinese moral education in schools is often influenced by ancient cultural traditions. Teaching methods commonly include the promotion of specific values such as obedience to the law, social justice, and care for others, as well as an emphasis on serving society as a whole. Compared to Western approaches, moral education in China tends to prioritize collective over individual values, encouraging individuals to view the nation as an extended family. Shi et al. (2023) further noted that moral education in China is frequently delivered through stories, classroom role plays, debates, and the presentation of moral role models. However, Yi and Peng (2006) argued that such approaches are often confined to the classroom, limiting opportunities to convey the complexity of real-world moral situations.

In many Western schools, moral education similarly involves the discussion of moral scenarios or dilemmas in class. For example, students may be encouraged to engage with ethical issues such as abortion or genetic engineering (McCrory & Reiss, 2023; Newcombe, 2013). Students are also supported in their development as civic moral agents, with increased social and cultural awareness (Rowe, 2006). Additionally, they are often given opportunities not only to discuss moral issues but also to develop enhanced tolerance and empathy by learning about diverse cultures in inclusive ways (Tanriverdi Gokceli, 2023).

3. Problems in Moral Education: What Exactly Is Moral and How Could Morality Be Taught?

Determining whether VR has a role to play in moral education first requires consideration of the nature of morality and whether it can be taught. J. Graham et al. (2013) pointed out that moral views can differ considerably, depending on societal norms and standards, as well as across historical periods. Indeed, it is often argued that morality is, to some extent, relative, that is, dependent on the specific context of time and place. Conversely, others argue that morality is at least partly consistent across contexts and involves broadly shared, potentially innate standards as part of human nature (J. Graham et al., 2013; Narvaez, 2018). The question is important if educators are to determine whether specific moral views should be taught. Distinct from debates concerning the evolutionary and developmental origins of morality, it appears clear that values such as kindness, care, and perspective-taking are central to moral development. Numerous studies have linked empathy and compassion to prosocial behavior (e.g., Archer, 2018; Ekstrom, 2018), and these traits are therefore often considered core moral virtues. However, determining which values should be prioritized in moral education remains challenging. This lack of clarity

can result in unfocused approaches and makes it difficult to assess effectiveness (Tian & Liu, 2019). Furthermore, it is important to emphasize that empathy is only one component of moral development and that in the absence of other components, such as compassion, ethical judgement and moral commitment, an increase in empathy may not lead to moral development.

In terms of pedagogy, Cheng et al. (2021) identified several key challenges. These include the difficulty children may have in understanding abstract moral concepts, as well as the lack of personalization in moral education. They also noted that didactic approaches, such as 'preaching' moral values, are generally ineffective. Similarly, J. Graham et al. (2008) highlighted ongoing disagreement regarding which moral values should be emphasized. While some scholars prioritize harm reduction and care as central dimensions, others emphasize values such as authority, purity, and in-group loyalty, as proposed in moral foundations theory (Haidt, 2008).

Hypothetical moral vignettes are frequently used both in teaching and in assessing individuals' moral values. In such tasks, students are presented with a moral scenario and asked to imagine what they would do, or what ought to be done, in that situation. However, this approach has been criticized for its limited ecological validity. Concerns include both the implausibility of hypothetical scenarios and the lack of correlation between stated moral judgments and actual behavior (e.g., Conway & Gawronski, 2013; Francis et al., 2016; P. A. Graham, 2014). It may therefore be insufficient to rely on self-reported moral judgments, as individuals may provide socially desirable responses. For example, when asked about racial bias, individuals often deny holding such biases, even when behavioral evidence suggests otherwise (e.g., Dovemark, 2012). As early as 1979, Meehan, Woll, and Abbott demonstrated that surveys of ethical attitudes are highly susceptible to response biases, including impression management and social desirability (Meehan et al., 1979). Specifically, they examined the Survey of Ethical Attitudes (Hogan, 1970), a paper-and-pencil questionnaire in which participants respond to moral dilemmas. They found strong, statistically significant correlations between responses on this measure and indices of social desirability, suggesting limited validity.

In our own research, we have used immersive virtual reality (IVR) to simulate moral decision making. Using an IVR version of the traditional footbridge dilemma, where participants must decide whether to sacrifice one person to save five, we immersed participants in a realistic scenario. While participants in a paper-and-pencil version typically reported that such an action was morally unacceptable, in IVR, more than 80% chose to carry it out (Francis et al., 2016, 2017; Terbeck et al., 2021). Participants also reported subsequent regret, often expressing a desire to reverse their decision made in the moment. Thankfully, the footbridge dilemma is not one that most of us face on a frequent basis. We include it here because it provides an example of a study undertaken to investigate the potential of IVR for moral education. Its findings align with broader psychological evidence demonstrating a discrepancy between moral judgment and behavior. For example, the famous Stanford prison experiment (Haney et al., 1973)—for all that its interpretation remains a matter of active academic debate (Scott-Bottoms, 2020)—challenged the 'dispositional hypothesis', which attributes violence and brutality in prisons to individual personality traits. Instead, the study seemed to show that ordinary individuals, when placed in positions of power, could engage in harmful behavior despite recognizing it as morally wrong (Zimbardo et al., 1999).

Taken together, this body of research suggests that moral education may benefit from incorporating more realistic forms of moral decision making and action.

4. The Use of Immersive Virtual Reality in Moral Education

We now review a novel approach to teaching morality through the use of VR and suggest that this may offer a valuable way to employ modern technology to enhance educational effectiveness. Here, educational effectiveness is understood as students advancing in their understanding of moral issues, becoming more independent learners, and developing their own moral perspectives. Our review is technically a narrative review rather than a systematic review, in that its purpose is to synthesize the findings on a topic and suggest new directions in an area rather than to summarize the best available research on a defined question (Pham et al., 2014; Siddaway et al., 2019; Sukhera, 2022).

We identified the literature relevant to the intersection of moral education and virtual reality. The literature search was conducted primarily using Google Scholar, supplemented by searches of other relevant academic databases (Web of Science and PsycINFO). Search terms included combinations of "morality AND education," "moral education," "virtual reality AND moral education," "virtual reality AND morality," and related terms. No restriction was placed on publication date. Our initial searches of the literature began in 2023, and we updated our searches until June 2026. Although we occasionally cite non-peer-reviewed outputs below, these were not part of our review, which only included peer-reviewed outputs, but are included for topicality or illustrative purposes.

Consistent with the narrative purpose of the article, we did not employ a prospectively defined systematic search, screening protocol, or formal inclusion/exclusion procedure, and we therefore do not report systematic-review study-flow counts. Instead, searching was broad and iterative, with the aim of identifying the available studies relevant to the scope of the review. Searches were continued until the researchers considered that further searching was no longer identifying substantively new studies directly relevant to the topic. Studies were then selected for their relevance to the conceptual and educational aims of the review.

For the sections on the cultural breadth and scope of moral education and on problems in moral education, we drew on studies and reviews concerning established approaches to moral education. For the discussion of VR, particular attention was given to empirical studies examining immersive virtual reality in relation to morality or moral education. We use immersive VR (IVR) here to refer to virtual environments in which participants experience a sense of presence within the simulated environment and can interact with, or respond to, virtual situations, characters, or objects (see below for a more detailed discussion of IVR). We prioritized studies that explicitly addressed morality, moral judgment, moral decision making, or closely related moral processes, rather than studies concerned with more circumscribed constructs, such as empathy, without an explicit connection to morality. Given the educational focus of the present article, particular attention was also given to research with clear potential relevance to moral education in secondary-school settings. Research involving adults was included where it provided relevant conceptual or methodological insights, but greater emphasis was placed on findings and approaches that could plausibly inform moral education for adolescent learners.

The identified literature was synthesized narratively, with studies considered in relation to the forms of moral learning they addressed, the ways in which IVR was employed, and their implications for educational practice. We did not undertake a formal risk-of-bias or quality-assessment procedure, as would typically be expected in a systematic review. Rather, the aim was to provide a critical synthesis of the emerging literature, connecting earlier theoretical and pedagogical developments in moral education with the possibilities offered by IVR and identifying priorities for future research and classroom application.

Virtual reality (VR), broadly conceptualized, can be understood as an interactive experience that is not reality. While in some sense, playing a computer game, serious gaming desktop VR (i.e., games with additional educational purpose), watching a film,

and displaying 360° videos could all be regarded as forms of VR, this review focuses specifically on immersive virtual reality (IVR). Although VR and IVR are sometimes used interchangeably in the literature, there is value in distinguishing between them. IVR involves the user being immersed in the scenario such that they are effectively placed within the virtual world, most commonly through the use of a virtual body, often accessed via a headset with goggles. Unlike non-immersive VR, IVR therefore entails the user being present in, and able to interact with, the virtual world rather than passively observing a scenario. Of course, viewers may still imaginatively engage with non-immersive VR, but IVR provides a more direct and embodied form of interaction. IVR can therefore be defined as a computer-based system that presents life-like situations, environments, and events with which one or more users can directly interact. In IVR, individuals are able to move within and explore their virtual environment, and to manipulate or respond to components of the 360-degree world presented to them (Zheng et al., 1998). This is made possible through the creation of animations using specialist programming technologies designed to capture key elements of a selected setting or event. Compared with less immersive forms of VR, research suggests that IVR is more life-like, in the sense of being more convincing, because it evokes a stronger sense of presence or 'being there' (Slater, 2009). Consequently, participants in IVR are more likely to exhibit genuine emotional and behavioral responses towards virtual humans, including increased physiological arousal, reported regret after harming virtual humans, and facial expressions or actions resembling those shown towards real humans (e.g., Francis et al., 2016, 2017; Slater, 2009).

Millennials and Generation Z entered education having grown up with digital technology rather than having to learn it in adulthood. It is sometimes held that this may make such technologies more accessible to them and that some older educators may not find it straightforward to adapt to this new technological learning environment (Palfrey & Gasser, 2011). However, such generational generalizations do not always hold (Selwyn, 2009). In a study of Millennials and Generation Z students (though not compared with older participants), Montiel et al. (2020) found that they learnt more effectively when using interactive technologies and internet-based tools, such as social media, than through traditional teaching methods. Using VR as part of a serious gaming experience, for example, where VR is developed for a purpose such as moral education, may therefore also be experienced as entertaining, helping to sustain engagement and interest. Immersion may also contribute to the transfer of learned skills to real-world settings (Alexander et al., 2005).

The use of VR in education more broadly has received strong empirical support. For example, Su et al. (2022) examined the effectiveness of an IVR tool for teaching geometry and found that both students' performance and motivation improved, suggesting that IVR can have positive academic and personal effects. This finding is consistent with the wider literature, in which many studies report significant improvements in both motivation and performance following VR-based learning activities (Baker et al., 2009; Cotton, 2021; Huang et al., 2016). It is also notable that the financial cost of IVR has fallen considerably, making its use increasingly affordable for schools.

However, although there are strong arguments in favor of VR in learning environments, there are also counterarguments. One concern relates to the physiological effects that VR can have on students. Reports of headaches, discomfort, cybersickness, and dizziness have tempered otherwise positive findings in several studies (Johnson, 2018; Porcino et al., 2017). Despite these concerns, the literature suggests that students are generally more likely to be engaged than distracted when VR is used appropriately and that physiological side effects are uncommon when the technology is used correctly (Huang et al., 2016; Johnson, 2018), noting too much screen time, with or without VR, can have adverse effects (Rich-Degeneve & Reiss, 2025). Nevertheless, there have been understandable calls for long-term studies of

any effects on human health (e.g., Grassini & Laumann, 2021). A second concern relates to the possibility of psychological distress and other ethical issues. In a scoping review that examined the broad applications, risks, and ethical challenges associated with Extended Reality (XR) technologies (which include VR as well as augmented reality and mixed reality), Kourtesis (2024) argued that:

> "XR's expansion raises serious concerns, including data privacy risks, cybersecurity vulnerabilities, cybersickness, addiction, dissociation, harassment, bullying, and misinformation. These psychological, social, and security challenges are further complicated by intense advertising, manipulation of public opinion, and social inequality, which could disproportionately affect vulnerable individuals and social groups". (p. 1)

As with any new pedagogical approach, caution about VR's adoption is advised. A teacher should check in advance that materials are age-appropriate and consider whether their content could cause distress to particular students. In addition, even when schools act *in loco parentis*, there is value, as is sometimes the case when teaching sex education (for example), in parents being shown teaching materials in advance with the option to ask for their children not to receive such teaching, and to ensure that students provide their assent too. As such, schools should follow applicable institutional, safeguarding and legal requirements regarding parental information or consent and should ensure that students understand the nature of the activity, provide their assent where appropriate, and know that they can stop participating if they experience discomfort or distress. Where appropriate, alternative learning activities should be available for students who cannot or do not wish to participate. Practical safeguards should also be established before VR is introduced. Students should be informed that they can discontinue the VR experience at any time, and teachers should monitor for psychological distress and physical adverse effects, including cybersickness, dizziness, nausea, or disorientation. Appropriate accommodations should be considered for students for whom standard VR equipment or activities may be unsuitable or inaccessible. Following the VR experience, students should be given an opportunity to debrief and discuss any distressing, confusing, or ethically challenging aspects of the experience, as we discuss in more detail below (Step 3: Enable In-Class Reflection and Discussion of Moral Decisions and Actions). Schools should also establish procedures for responding to and documenting significant adverse incidents in accordance with their existing safeguarding and incident-reporting policies. Particular care is also required in relation to privacy. Any records of students' virtual actions or moral choices should be minimized, stored securely where retention is necessary, and, wherever possible, not linked to personally identifying information. Students should be informed about what information is recorded, how it will be used, who can access it, and how long it will be retained. As with any approach to moral education, a single moral framework (e.g., consequentialism, virtue ethics, religion) should neither be proscribed nor prescribed so as to avoid bias or indoctrination and preserve moral pluralism.

VR has previously been used in research and other contexts to investigate moral behavior. Sometimes referred to as the 'empathy machine' (Barbot & Kaufman, 2020; R. Hassan, 2020; Milk, 2015), VR has consistently been shown to enhance empathic responses in a wide range of settings (Gerry, 2017; Shin, 2018; Van Loon et al., 2018). Bujić et al. (2020) conducted a laboratory study examining individuals' responses to a human rights questionnaire after either watching a VR video or reading an article on the same topic. Those who watched the VR video scored significantly higher on the questionnaire, and this effect was stronger among participants who reported greater involvement in the VR experience. This finding has also been replicated with a student sample (Shim, 2023). Both studies used 3D VR video rather than a fully immersive experience, which may

mean that the effects could be stronger under IVR conditions. The projected increase in students' empathic responses through VR may also support broader moral development and kindness in everyday life (Batson et al., 1991). According to the empathy–altruism hypothesis, individuals who feel empathy are more likely to behave in helpful and caring ways than those who do not (Batson et al., 1991). In addition, Peck et al. (2013) found that placing light-skinned participants in dark-skinned virtual bodies using VR reduced racial bias towards dark-skinned individuals. It was suggested that this effect resulted from a sense of ownership over the virtual body, which altered prejudicial attitudes and arguably increased empathy. This further supports the view that VR can influence social attitudes and perceptions.

Johnson (2018) examined the use of VR technology in religious studies classes at a university in the United States. Johnson selected a 3D VR clip and corresponding assignments related to the course content. The results were positive, with participants rating their enjoyment of the VR activity at an average of 7.9 out of 10. Students also reported feeling "... like I was actually there" (p. 233), indicating high levels of engagement. Furthermore, the study reported statistically significant, albeit weak, increases in both academic performance and empathy. These findings suggest that educators may be optimistic about the potential use of VR in religious studies, although further research is needed to assess its effectiveness and, as noted earlier, an immersive component could strengthen the approach. Similarly, Sholihin et al. (2020) developed an immersive VR task involving ethical scenarios in business. These were used as teaching materials in a university ethics class for business students. The findings showed that students found learning through IVR to be motivating and perceived it as increasing their learning effectiveness and awareness of business ethical dilemmas. Zarglayoun et al. (2022) investigated moral reasoning using serious gaming in 12–17-year-old participants. Results showed that playing a video game that included feedback on and social reinforcement of social choices later improved participants' moral reasoning skills on a computer-based moral dilemma task. This study measured pre- and post-moral reasoning ability after the game-based intervention, suggesting that serious gaming could have a positive impact on moral reasoning ability in young adults. Using a quasi-experimental design, where students experienced classes using either traditional teaching or VR simulated moral scenarios, Qiu (2025) found that the latter showed improved moral cognition and satisfaction scores, indicating enhancement in moral reasoning after the interactive VR intervention. However, the quasi-experimental design and moral cognition measures were not systematically selected in this study.

More recently, Harrison (2024), in a review of the field, argued that VR may offer four educational opportunities for students: expansive, immersive, embodied, and autonomous learning. Expansive learning is described as involving worldwide interaction and multiple perspectives; immersive learning as offering a stronger emotional experience than traditional methods; embodied learning as enabling learners to express moral virtues more freely; and autonomous learning as providing opportunities for students to learn and express themselves without being constrained by prescribed rules or strict directions. Scuotto et al. (2024) conducted a scoping review of digital interventions in morality. They concluded that immersive simulations might enable participants not merely to learn about moral rules but also to enhance their own moral decision making. Specifically, they found that compared to online educational programs, interactive serious games (such as virtual reality interventions) prompted morality through reflection after engaging in the interactive simulation. Additionally, Fitria and Sosang (2025) reviewed digital technology in early childhood moral education, showing that interactive digital gaming increased children's empathic responding. Furthermore, A. Hassan and Cheong (2024) suggested in their review

that combining virtual reality with other technological approaches might be beneficial for increasing students' reflection on moral and social issues.

While an increasing number of studies, including recent review articles on VR and other digital technology use in moral education, suggest such technologies might be beneficial, it remains unclear whether such training genuinely modifies students' ethical behavior or moral understanding in real life. Furthermore, many studies show results of enhanced student engagement with the learning materials and changes in attitudes and awareness, which, however, might not translate into moral behavior. Indeed, determining the effects of an intervention on later behavior or understanding is difficult. One possible approach would be to conduct longitudinal studies involving a number of educational institutions, whereby some of which use IVR in moral education and some of which do not. The effectiveness of IVR could then be assessed by examining whether there is a relationship between the form of moral education received and students' later moral behavior. This could be carried out, for example, by comparing rates of anti-social behavior in schools or by asking students in later years to complete standardized assessments of moral sensitivity, judgment, or behavior. Overall, existing research suggests that IVR may indeed be a valuable means of enhancing moral skill development in the educational curriculum (see Table 1).

Table 1. Summary of sample studies using virtual and related technologies.

Reference	Participants	Technology Used	Main Results
Bujić et al. (2020)	87 adults	360-degree video	Greater involvement with the content and more positive changes in attitudes toward human-rights issues
Gerry (2017)	32 adults in an art class	Immersive mixed reality	Exploratory findings indicated potential for expert–novice mentorship simulation
Huang et al. (2016)	30 children aged 4–5 years in an art class	Augmented reality	Children were able to use the application, although parents, teachers, and others expressed concerns about use of the technology with such a young age group
Johnson (2018)	38 college students	360-degree camera and VR headset	Greater enjoyment of class and greater perceived understanding of the content
Peck et al. (2013)	60 adults	Immersive virtual reality (IVR)	Reduced implicit racial bias following embodiment in a Black avatar
Qiu (2025)	200 first-year high school students	Immersive VR moral-scenario simulation	Significantly greater improvement in moral cognition, moral emotion, and moral behavior markers
Sholihin et al. (2020)	18 university students	Semi-immersive VR; images and effects projected onto a large screen	Increased motivation and perceived learning effectiveness
Su et al. (2022)	40 second-grade high school students	Immersive VR technology used in mathematics class	Greater confidence in understanding the subject
Van Loon et al. (2018)	180 adults	Immersive virtual reality (IVR)	Increased perspective-taking toward the virtual partner
Zarglayoun et al. (2022)	57 adolescents aged 12–17 years	Serious video game	Adaptive feedback increased moral maturity

However, using IVR in the classroom also presents challenges. We therefore propose three steps that educators might usefully take in order to implement IVR effectively in moral education: (1) set up the technology; (2) create moral scenarios; and (3) enable in-class reflection and discussion of moral decisions and actions.

Step 1: Set Up the Technology

It must be acknowledged that we are still at a stage where class sets of IVR technology are relatively clunky and expensive. However, the technology is improving rapidly, much as mobile phones have done over the past two decades. Figure 1 shows a child wearing a VR headset back in 2018. Although the term 'VR headset' is standard, 'IVR headset' would be more precise in this context. Six years later, Newton-Rex (2024) enthusiastically described the latest VR headsets in an article titled 'I spent a week working, exercising and relaxing in virtual reality. I'm shocked to say it finally works.' Nevertheless, VR headsets are not necessarily becoming cheaper, although, as with laptops, it is possible that substantially lower-cost versions for school use may eventually become available. Industry magazines regularly publish reviews of the latest equipment (e.g., Greenwald, 2026). Consideration should also be given to the possibility of motion sickness when using IVR. Children should be able to remove the headset at any time and should only use it for short periods. Alternative 2D desktop versions of the tasks should also be made available.



Figure 1. Sakurako, the photographer's daughter, wearing a VR headset in August 2018. *Source*: https://commons.wikimedia.org/wiki/File:Girl_wears_a_VR_headset._(43311308684).jpg (accessed on 29 June 2026) Photograph by Miki Yoshihito.

Step 2: Create Moral Scenarios

One possibility is to use existing VR moral tasks, for example, those used in Patil et al. (2013), available at https://www.youtube.com/watch?v=ebdU3HhhYs8 (accessed on 29 June 2026). If the desired moral scenarios are not already available, an expert company could be commissioned to develop the task, such as a Unity 3D software engineering firm. Alternatively, if students have the relevant capability, and given that animation is now easier to produce than it used to be, they might devise their own moral scenarios and create the accompanying animation or animations. Scenarios should be presented in real time in IVR, with the protagonists represented by virtual humans.

Below is a list of example moral scenarios for teenagers and young adults that may be suitable for adaptation into IVR:

- Lying for self-gain (for example, lying to parents in order to go to a party);
- Bullying someone to impress others;
- Lying to help someone else (for example, if another student has done something wrong, such as creating an offensive website or hurting someone, should the student tell the teacher?);
- Deciding whether to intervene as a bystander (for example, helping someone who is unwell at a party or trying to break up a fight).

A general point is that the scenarios need to be sufficiently convincing ('life-like') for students to engage with them authentically.

Step 3: Enable In-Class Reflection and Discussion of Moral Decisions and Actions

Finally, after experiencing the scenario in IVR, students should be given the opportunity to reflect and discuss their decisions and actions in small groups and/or in a whole-class session, as is standard in a traditional classroom discussion of moral issues. Students should not be required to share how they thought or acted in the scenario. There is likely to be value in gaining personal insight into one's thoughts and actions even without disclosing them to others. In small-group or whole-class discussions, the range of possible choices and their consequences could then be explored, allowing students, if they wish, either to articulate and defend their thoughts and actions or to revise their views.

5. Using IVR as a Tool to Promote Moral Awareness

IVR in moral education, and in research on moral education, has often been used to elicit empathic responses from users, with the hope of subsequently encouraging prosocial choices such as helping others by increasing concern for virtual humans (Cotton, 2021). However, moral decisions are not driven solely by empathic concern for others; they also involve other decision-making processes, including consideration of the consequences for oneself because of one's actions. Furthermore, it has been suggested that using IVR as an 'empathy machine,' which may involve directing users towards specific choices, could limit their freedom of moral decision making (Cotton, 2021). Virtual reality allows students to visualize virtual consequences without anyone experiencing the direct real-world harms that might follow from these consequences. Although the consequences are not 'real,' IVR may still enable them to be understood, imagined, and emotionally felt by the moral agent, thereby illustrating the potential impact of different decisions.

It is therefore possible that IVR may increase users' moral awareness, understood here as a greater understanding of the ethical significance of moral actions and their consequences, such that users are in a better position to make more ethically informed decisions in the future. Moral awareness may overlap with the concept of moral sensitivity, which Jordan (2007) defines in terms of three domains: recognition and affective response; recognition; and recognition together with the ascription of importance. With regard to moral sensitivity in children, Jordan suggests that this concept relates to empathy, role-taking, and prosocial moral reasoning. More specifically, Jordan (2007) argues that moral judgment is preceded by moral sensitivity, which involves the capacity to feel empathy, understand others' perspectives, and recognize an issue as morally significant and requiring ethical decision making. For example, in medical, mental health, or social contexts, the first step is often for an individual to recognize that a situation has moral importance and may affect others.

Economists and other researchers have studied decision making for decades, suggesting that human decision making involves several conceptual stages. According to the

rational economic model, these include recognizing a problem, identifying possible courses of action, considering likely future consequences, and evaluating the subjective value of possible outcomes (Ajzen, 1996). While rational decision theory focuses on cognitive processes aimed at reaching an optimal decision, human decision making, and moral decision making in particular, also involves emotional and sometimes impulsive responses made in the heat of the moment (Fischhoff & Broomell, 2020; Terbeck et al., 2021).

However, these psychological decision-making processes, particularly the consequences of one's actions, are usually only imagined; we can anticipate the outcomes of our behavior, but we do not experience them until the decision has actually been made. Twilight Saga aficionados may recall Alice Cullen's exceptional ability to foresee the consequences of possible decisions, for example in the Volturi battle scene in *Breaking Dawn Part 2*. IVR may similarly enable users to visualize the consequences of possible decisions before they act. Figure 2 provides an overview of how an IVR moral scenario could be structured to allow the consequences of one's decisions to be experienced. As shown, the user first encounters a moral scenario in IVR and must recognize that 'something is wrong,' that a moral dilemma is present and rapid action is required. Given the urgency of the situation, the learner may then take an impulsive action in the heat of the moment. IVR can then allow the user to observe the consequences of that action. Indeed, IVR could also be used to show possible consequences before any action is taken. Subsequently, in class, these possible consequences could be reflected upon and discussed. As neither the action nor its consequences are real, the learner can learn from the experience without any actual adverse consequences resulting.

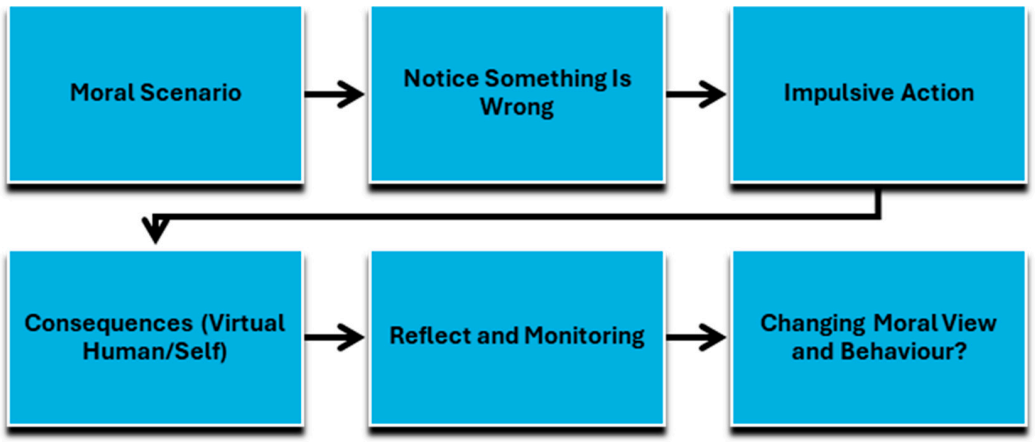


Figure 2. Setup of an IVR moral scenario with moral decision-making consequences. *Source*: provided by authors.

For instance, in IVR, a student may learn to appreciate more fully than they previously have that harming another person causes distress to that person, as the student can observe the emotional reaction of the virtual human. In addition, the student may learn that harming another person may lead to social disapproval, for example, through disagreement expressed by other virtual humans, or even to legal consequences. These are consequences of moral action for the self as well as for others. At present, vision, that is, seeing consequences in IVR, is the most prominent sense through which the consequences of moral decisions are perceived. However, other senses can also be incorporated into the IVR experience. For example, a robotic device can be used through which users can physically feel the force involved in touching or pushing a virtual human (Francis et al., 2017).

6. Discussion

In this article, we began by examining traditional approaches to moral education. These approaches largely focus on teaching specific moral values and rely on conventional instructional methods, such as lectures and the use of texts or spoken stories in which moral choices are presented. Our central argument is that moral education *may* (the evidence is not conclusive) be enriched through the use of immersive virtual reality (IVR), as this technology enables students to experience moral scenarios in a more immediate and embodied way. As reviewed, the use of IVR has been associated with increased student engagement and enhanced perceived moral competence. In addition, IVR may support a more open-ended approach to moral education, in that students can observe the consequences of their moral choices without being explicitly told which option is 'correct.' Through this process, learners can experience the virtual consequences of their actions and may subsequently reflect on and regulate their own behavior, potentially increasing moral awareness. This, in turn, may influence the choices they make when encountering similar moral situations in real life.

Despite its potential, IVR remains a relatively novel, albeit rapidly developing, technology, and several challenges must be addressed before it can be widely implemented in moral education. First, issues of affordability and accessibility remain, as well as the possibility of physical discomfort for some users. Second, there is currently a limited availability of age-appropriate IVR moral scenarios, indicating a need for further development in this area. In the interim, non-immersive VR may provide a practical alternative. Additionally, augmented reality, where virtual content is superimposed onto the real world (Dargan et al., 2023), may represent another promising avenue for future research and application. Third, evaluating the effectiveness of IVR in educational settings presents methodological challenges. While existing studies suggest that students enjoy using VR and perceive it as beneficial for learning (e.g., Johnson, 2018; Sholihin et al., 2020), such perceptions do not necessarily translate into measurable improvements in learning outcomes or behavioral change. As discussed, longitudinal studies would be particularly valuable in assessing the long-term impact of IVR-based moral education. For example, comparisons could be made between institutions that have implemented IVR and those that have not, examining outcomes such as rates of antisocial behavior or performance on measures of moral sensitivity, judgment, or behavior. It is also the case that the introduction of IVR in schools makes additional demands on teachers, so professional development is likely to be needed.

Moral awareness, as developed through IVR, could also be assessed over shorter time frames using experimental designs. For instance, participants could first engage with a moral dilemma in IVR and make an initial decision. After observing the consequences of their actions and participating in reflective discussion, they could then encounter the same or a similar scenario. Changes in behavior (e.g., whether the same decision is made) and response times (e.g., whether decisions are made more quickly or more cautiously) could provide indicators of increased moral awareness and reduced decision-making conflict. However, it should be noted that moral awareness does not necessarily lead to moral action. Individuals may recognize that certain behaviors have negative consequences for themselves and others, yet still engage in such behaviors. Nevertheless, we hypothesize that IVR, by enabling users to experience simulated consequences directly, may exert a stronger influence than traditional approaches in which such consequences are only imagined.

This review highlights both the potential benefits and the challenges associated with the use of IVR in moral education, including moral education in the school classroom. As digital technologies become increasingly integrated into educational contexts, it is important that their implementation is guided by careful consideration. This is necessary

not only to minimize potential risks but also to maximize the likelihood of achieving meaningful learning outcomes.

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