

COMPARING ONLINE AND VIRTUAL REALITY MORAL DILEMMA DISCUSSION

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Abstract

Face-to-face moral dilemma discussion, which has been employed in moral education throughout the world, has been repeatedly shown to improve morality and sociality even though face-to-face discussions have recently been difficult to implement. Accordingly, in this study, the educational effects of online moral dilemma discussion (OMDD) and virtual reality moral dilemma discussion (VRMDD) for college students were examined. The participants, who included 38 female university students, were randomly assigned to an OMDD or a VRMDD condition, although they participated in both conditions with acquaintance pairs; Zoom was employed in the OMDD condition, and the VRMDD condition used a VR headset (Oculus Quest 2). The participants in the OMDD condition used individual personal computers, whereas those in the VRMDD condition utilized a VR headset that had been prepared individually in a small laboratory. Pair 1, Pair 2, and the experimenter participated from separate rooms. In the VRMDD condition, each experimenter assistant explained how to use VR to each participant. In both conditions, after following the experimenter's instructions and practicing, the pairs discussed Heinz's dilemmas (1) and (2). The discussion ended when the pair reached a conclusion. The standards for public space (SPS) scale, which comprised egocentric, peer standards, regional standards, care for others, and public values subscales, and the communication skills scale (CS), which included listening and speaking, nonverbal, assertiveness, and discussion subscales, were measured separately before and after the experiment. The SPS corresponds with Kohlberg's stages of moral development. After confirming the homogeneity of both conditions, an analysis of variance was performed with two factors for each subscale: condition (OMDD, VRMDD) and the time of survey (pretest, posttest). The results revealed that there were significant differences in the main effect of the condition for the subscales of the SPS. The respondents scored higher on the SPS egocentric and peer standards subscales, which had significant main effects at the time of the survey, on the pretest than on the posttest. The practice of OMDD and VRMDD decreased behavioral standards with a narrow social perspective (egocentric and peer standards), and OMDD and VRMDD were not related to behavior standards with a wider social perspective (regional standards, care for others, and public value) or CS.

Keywords: *Online moral dilemma discussion, virtual reality moral dilemma discussion, Zoom, VR.*

1. Introduction

Recently, communication with internet technologies has been used often because of COVID-19. Virtual reality in particular is one of the most realistic communication tools. The aim of this study is to compare VRMDD, which is a moral dilemma discussion using virtual reality, with online moral dilemma discussion (OMDD), and to examine the differences between them.

MDD (Blatt & Kohlberg, 1975) derives from Kohlberg's theory as a method of discussing topics in moral education. Prior to advocating for the effect of MDD, Kohlberg (1971) theorized that morality has six stages of development, later contending that morality develops from Stage 1 to Stage 6 along with cognitive development and that MDD promotes moral development (Blatt & Kohlberg, 1975). Among the moral dilemma tasks that constitute MDD in moral education, Heinz's dilemma is well-known. Rest's (1979) Defining Issues Test (DIT) also measures stages of moral development alongside Kohlberg's theory worldwide (Bayley, 2011), and subsequently developed the DIT2.

In Japan and other countries, researchers have determined that morality develops in stages with aging (e.g., Sakurai, 2011). Additionally, Japanese researchers and teachers have collaborated and spent more than 40 years comprehensively accumulating knowledge on teaching materials around moral dilemmas of interest to students, on how to perform MDD depending on the age of students, and on the educational effects of MDD (Araki, 2014). The interesting point concerning MDD is that it can encourage

students to engage in free discussion by adopting as teaching materials moral dilemmas in which multiple values conflict with each other. Although researchers have noted some issues around MDD, in general, conducting MDD not only improved morality (Blatt & Kohlberg, 1975; Araki, 2014; Lind, 2019) and business ethics (Oser & Schalafli, 2010) and influences prosocial formation (Salvador, 2019) but also activates thinking and deliberating skills (Fujisawa, 2018).

Following these principles, Japanese researchers have conducted many moral education of face-to-face MDD (FMDD); however, none have studied online MDD (OMDD). There has only been one study in Nagasaki prefecture in which the investigator conducted OMDD by connecting a group of schools' online morality classes, and no one has conducted discussion studies using online tools with individual elementary and middle school students. However, in one study, university students accepted online discussion, but preferred face-to-face discussion and considered the online discussions supplementary to face-to-face discussion (Tiene, 2000). Hedayati-Mehdiabadi, Huang, and Oh (2020) discovered that under supportive conditions, a group of university students experienced fresh awareness from participating in ethics education using online discussion. Cain and Smith (2009) compared OMDD and FMDD in a group of pharmacy students and found that the FMDD allowed the students to ponder the subjects, whereas the anonymity in OMDD tended to lend itself to criticism while hindering constructive discussion. Bell and Liu (2015) administered the DIT2 before and after conducting OMDD with college students, and the students' scores increased after the discussion.

Fujisawa (2018) conducted FMDD with pairs of acquaintances at the same university and administered the standards for public space (SPS) scale (Nagafusa et al., 2012) and the CS scale (Ueno & Okada, 2006) before and after the discussion. The SPS scale has five subscales that correspond to Kohlberg's stages of moral development. After FMDD, the subscales of egocentric and peer standards decreased and the subscale of care for others increased. The CS scale has four subscales: listening and speaking, nonverbal skills, assertion, and discussion. After FMDD, the scores of assertion and discussion increased. Fujisawa (2022) conducted FMDD and OMDD with pairs of acquaintances from the same university and administered the SPS and CS scales (in Microsoft Forms) before and after each discussion. Fujisawa's students recorded higher scores on the SPS public values subscale following OMDD than after FMDD, and she found no significant differences in the CS subscale scores.

As described above, OMDD using Zoom or Webex was very convenient and meaningful, especially during COVID-19, but this type of OMDD is not entirely natural fully. In response, metaverse companies have promoted virtual reality environments such as Meta Quest2 in which it appears that we can conduct OMDD as smoothly as if we were together. In moral studies using VR, the VR technology enhanced empathy; pulses increased (Herrena et al., 2018; van Loon et al., 2018). In a different study, VRMDD made pulses increase, which predicted that nonutilitarian judgments were being conducted (Francis et al., 2016), and researchers have also found that using VR technology made study participants care for others (Terbeck et al., 2021) and improved children's social skills (Kellems et al., 2021). These results supported that using VR in education can positively influence our morality. However, it is not clear whether VR technology improves our morality and CS enhance as well as OMDD. The purpose of this study was thus to examine whether VRMDD would enhance a group of students' morality and CS.

2. Method

The participants were 38 female university students whom were randomly assigned to the OMDD or VRMDD condition. The OMDD proceeded on Zoom, and the students in the VRMDD condition used a VR headset (Oculus Quest 2). The participants in the OMDD condition used individual personal computers, whereas those in the VRMDD condition utilized a VR headset that had been prepared individually in a small laboratory. Pair 1, Pair 2, and the experimenter participated from separate small laboratories (Figure 1). In the VRMDD condition, each experiment assistant explained how to use VR to each participant. In both conditions, after following the experimenter's instructions and practicing, the pairs discussed Heinz's dilemmas (1) and (2). Figure 2 presents the setup of the VRMDD condition. The discussion ended when the pair reached a conclusion. Before and after the discussions, we administered to the students the SPS scale, which comprises egocentric, peer standards, regional standards, care for others, and public values subscales, and the communication skills (CS) scale, which measures listening and speaking, nonverbal skills, assertiveness, and discussion.

The SPS scale (Nagafusa et al., 2012) comprises 25 items on 5 subscales. This scale aims to evaluate what standards an individual considers important concerning egocentric behavior in public spaces in pursuit of profit or freedom without concern for the impression it creates on others. Peer standards denote the importance one places on aligning with one's peers. Regional standards influence the importance given to approval from the local community. Care for others refers to the importance one places on caring about unrelated others. Public values denote a concern for public interest and fairness for society as a whole.

Previous studies (Fujisawa, Azami, Sugawara, Nagafusa, & Sasaki, 2006) confirmed the reliability and relevance of the scale. The five subscales correlate with the five stages of the DIT (Fujisawa et al., 2006). Each item calls for a response on a five-point scale where 1 = “does not describe me at all” and 5 = “describes me very well.” A total score was calculated for each subscale. A higher total score indicates better skill in that area.

As noted above, the CS scale (Ueno & Okada, 2006) consists of four subscales, listening and speaking, nonverbal skills, assertion, and discussion skills. Listening and speaking, and nonverbal skills relate to the ways we directly and indirectly deliver and receive conversational input from others, and assertion is a communication skill that can help to build better relationships by openly conveying and receiving opinions with respect for others rather than unilaterally imposing one’s own opinion or having to tolerate a conversation partner who does so. Discussion of course ties the other skills together to comprise your communication abilities. Following Ueno and Okada’s (2006) scoring manual, synthetic scores were calculated for each field scale and the relevant scoring manual for the CS scale was followed as well. A higher total score indicates better skill in that area.

3. Results

Tables 1 and 2 present the basic statistics for the SPS and CS scale scores. After confirming the homogeneity of both conditions, an analysis of variance was conducted with two factors for each subscale: condition (OMDD, VRMDD) and time of the survey (pretest, posttest). The results revealed significant differences in the main effect of the condition for the SPS subscales (egocentric: $F(1, 36) = 5.5, p > .05$, biased $\eta^2 = .13$; peer standards: $F(1, 36) = 5.9, p > .05$, biased $\eta^2 = .14$). The students recorded significantly higher scores on the SPS egocentric and peer standards subscales on the pretest than on the posttest. The CS subscale scores showed no significant differences.

4. Discussion

With this study, we examined whether using VR technology in MMD (VRMDD) improves our morality and CS as well as FMDD. Interestingly, our findings seemed to indicate that OMDD and VRMDD lowered behavioral standards with a narrow social perspective (egocentric and peer standards) but were not related at all to behavior standards with a wider social perspective (regional standards, care for others, and public value) or to CS.

Regarding the SPS scale, our findings partially confirmed those of Fujisawa (2018) partially. We found the same results for the egocentric and peer standard subscales in this study using OMDD and VRMDD that Fujisawa found using FMDD: Both subscale scores decreased after all the forms of MDD, which means our narrow social perspectives (egocentric and peer standards) decrease. Meanwhile, OMDD and VRMDD did not influence areas with wider social perspective, such as regional standards, care for others, and public value, whereas FMDD did have effects. These results suggest that all MDD decrease our narrow social perspectives (egocentric and peer standards). Therefore, it concludes that FMDD, OMDD, and VRMDD decrease our narrow social perspectives. In other words, it means that any of the styles improve our narrow perspectives (egocentric and peer standards).

With respect to the CS scale, our findings did not support those of Fujisawa (2018) with FMDD. Although FMDD improved assertion and discussion in that study, VRMDD did not improve any CS subscales in this study. CS is an important social skill, so we considered that FMDD would influence CS but VRMDD would not. In fact, in online communication including VR and Zoom, it can be difficult to speak in turn, and many people hesitate to speak up; it is also not possible to exchange opinions with people near you in online discussion. Therefore, we thought that VRMDD would not affect the CS scale scores, considering that VRMDD is more realistic than OMDD. However, we showed that VRMDD cannot replace FMDD for CS. These results highlight that VRMDD, OMDD, and FMDD have their own characteristics, and we considered it meaningful to find that any method would be effective depending on the need or social situation.

5. Future tasks

It was meaningful to clarify with this study whether VR technology enhances our morality and CS as well as OMDD does. However, there were only a few participants, and it is left to future researchers to examine the effects of VRMDD with a large group of participants.

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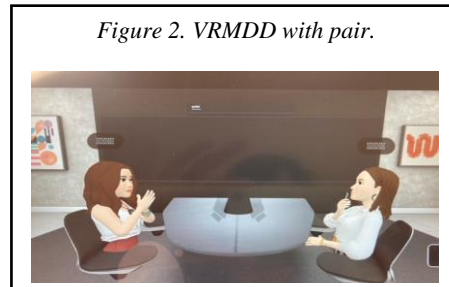
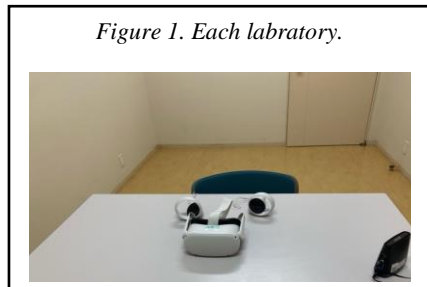


Table 1. SPS subscale scores in each condition.

	Condition	Egocentric		Peer standards		Regional standards		Care for others		Public values	
		M	SD	M	SD	M	SD	M	SD	M	SD
Pretest	OMDD	9.4	3.1	11.7	3.9	19.3	3.1	21.2	1.9	22.1	2.8
	VRMDD	9.2	2.8	12.7	4.7	20.2	4.0	21.5	3.0	22.7	1.3
Posttest	OMDD	8.7	3.0	11.4	3.3	19.6	3.6	21.2	2.2	21.9	2.8
	VRMDD	8.4	2.8	11.2	4.2	20.3	4.1	21.0	3.2	22.8	1.7

Table 2. CS subscale scores in each condition.

	Condition	Listening and Speaking		Nonverbal		Assertion		Discussion	
		M	SD	M	SD	M	SD	M	SD
Pretest	OMDD	1.8	0.5	1.8	0.8	13.9	1.8	4.1	0.9
	VRMDD	1.9	0.7	2.0	0.5	13.8	2.0	4.0	0.7
Posttest	OMDD	1.7	0.6	1.9	0.7	13.8	2.6	4.1	0.9
	VRMDD	1.8	0.7	2.1	0.5	13.8	2.4	4.3	0.7

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