Impact of Moral Intensity on Moral Behavior in the context of Artificial Intelligence: The Mediating Role of Technology Moral Sense

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Abstract

With the popularization and application of artificial intelligence technology in daily life, new ethical and moral problems constantly appear in human society. These ethical and moral problems have been associated with people's moral behavior and have become crucial issues. In traditional social situations, researches have proved that moral intensity affects people's moral behavior. However, in the context of applying artificial intelligence technology, the mechanism between moral intensity and moral behavior is unknown. Therefore, this study focuses on the relationship between moral intensity and moral behavior in the context of applying artificial intelligence technology, and introduces a new concept — technology moral sense (TMS) into the theoretical model. Research method: We set various situations of applying artificial intelligence technology and adopt the situational experiment method to analyze the relationship between moral intensity and moral behavior in different application scenarios. The results show that moral intensity has a significant influence on moral behavior, while the technology moral sense performs a mediating function.

Keywords: AI, moral intensity, moral behavior, mediating role, technology moral sense.

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1. Introduction

The widespread application of artificial intelligence technology has brought unprecedented convenience to people's life, whereas it also raises a variety of ethical and moral risks in data collection, data analysis, algorithm recommendation and other aspects. Therefore, questions like how ethical issues arise, and what are key factors affecting people's moral behavior when applying artificial intelligence technology are worth discussing in greater detail. In previous studies, Jones explored the relationship between moral intensity and moral behavior, demonstrating that moral intensity has a significant impact on moral behavior [1]. Therefore, whether moral intensity still has an influence on moral behavior in the technology application situations, and what is the internal mechanism between the two have become the key questions to explore.

1.1 Moral intensity

Moral intensity was first proposed by Jones, who held that moral issues vary with the moral intensity. She introduced this concept and corresponding theoretical model that greatly enhanced understanding. Moreover, she proposed six components of moral intensity, namely magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect. Singhapakdi then tested Jones's six components of moral intensity based on exploratory analysis, whose result supported a two-factor solution [2]. Many other scholars also came up with the same result [3] [4]. With the introduction of Jones' moral intensity theory, more and more scholars began to conduct empirical research on how moral intensity affects the four processes of moral decision-making.

Treviño et al. defined moral behavior as the action in accordance with the moral code of conduct [5]. This broad definition indicates that behaviors violating ethics, such as lying, cheating, and stealing, are generally regarded as immoral, and those overstep moral standard, such as illegal act and denunciation, are also considered immoral. Reynolds and Ceranic studied the relationship between moral judgment and moral behavior based on moral individuals [6]. Scholars have concerned the influencing factors related to moral behavior process for a long time. The vast majority of previous studies in this field have focused on personal factors and organizational characteristics, such as gender, age, and peer influence [7] [8], while fewer considered the relationship between moral issues, moral situations and moral behavior. So, it can be said that Jones' research on the relationship between moral intensity and moral behavior has filled this gap, and her opinion has been confirmed subsequently by other scholars. Leitsch (2006) studied the relationship between different dimensions of moral intensity and the moral behavior of accounting personnel in their study of moral intensity and moral behavior choice [9]. Hong and Kang concluded that moral intensity positively affects sustainable purchasing behavior of textile products [10]. Zabel et al. believed that moral intensity affects the number of users' downloads in Germany during the epidemic [11]. Peslak introduced moral intensity variables to analyze how students, teachers and practitioners think about technological immorality [12].

Although some scholars have studied the close relationship between moral intensity and moral behavior, most of them focus on traditional situations, such as marketing, workplace, business, etc. [13] [14]. Under such traditional moral circumstance, moral intensity can affect people's moral decisions, and then influence their moral behavior. Technology has long been regarded as a rational tool existing outside human. It is a means that meets human needs, without any intention. However, some scholars proposed that people now gradually identify

moral risks in the practice of artificial intelligence technology, which will produce happy or unhappy moral perception emotion, and let people make moral judgment on technology, indicating that technology has caused people's technology moral sense [15]. Vibeck's thought of "moralizing technology" also admitted that technology could regulate people's moral behavior and moral decision-making, thus technology not only "has" intention, but can also become "moral actors" [16]. With artificial intelligence technology penetrating into all aspects of human society, big data, algorithms, intelligent monitoring, and other technologies will affect people's moral choices, and cause new moral problems. The relationship between moral intensity and moral behavior is worth further exploration.

In current situation that artificial intelligence technology is widely used, discussing the characteristics of moral problems, and exploring the internal mechanism between moral intensity and moral behavior have not only theoretical value but also practical significance and is full of sense of era. Ihde pointed out that technology, as an intermediary, builds a model of people's perception of the world [17]. He introduced a fourfold classification of technology-based relationships between human and the world: embodiment relationship, hermeneutic relation, alterity relation, and background relation. Technology will affect the formation of people's moral world, influence people's views on moral problems arising caused by technology, and then restrict people's moral behavior. In the context of information technology, moral intensity affects all stages of the moral decision-making process, which revealed the interconnectedness of moral intensity and moral behavior. Similarly, Goles et al. studied people’s views of moral problems under a specific situation, holding that moral decision-making process is influenced by personal view of a problem in specific cases, that means, moral intensity could affect moral behavior [18]. In addition, Peslak found that different moral intensity has different influence on moral decision-making process [19].

1.2 Moral behavior

Related literatures on moral behavior mostly focused on children's moral behavior, for instance, Ugurel-Semin studied the relationship between children's moral judgment and moral behavior [20]. Later Blasi studied the relationship between moral cognition and moral behavior based on the cognitive development theory, but the cognitive development theory just vaguely admitted its correlation [21]. Hayes et al. examined the relationship between the development of moral behavior and the development of the verbal regulation process [22]. In addition, many scholars have studied the influencing factors of moral behavior, mainly focusing on the influence of moral judgment on moral behavior [23] [24]. Human believed that the fundamental motivation of moral behavior comes from moral emotion rather than rationality. He also pointed out that there is both good and bad moral sense, thus moral behavior has both prosocial side and aggressive side. Compared with previous scholars, Jones formally put forward the concept of moral intensity, and constructed a theoretical model elucidating the effect of moral intensity on moral behavior, which enriched the influencing factors of moral behavior, and proved the significant influence of moral intensity on moral behavior in human society.

Rest proposed the four-step model of moral behavior including moral sensitivity, moral judgment, moral motivation, and moral character [25]. We think that discussing the relationship between moral intensity and moral behavior cannot only focus on moral behavior itself, but also need to take their correlation into consideration. Regarding the first stage of moral behavior—moral sensitivity, Chia and Lim claimed that moral intensity is significantly correlated with the cognition of moral problems [26], which is consistent with the finding of Rousselet et al. [27]. Singhapakdi et al. discovered that moral intensity affects people's moral

perception and moral intention, and moral intention is considered to be a stage closer to moral behavior. Feng studied the relationship between perceived moral intensity and the first three stages of moral behavior, demonstrating that moral intensity has correlations with all the three stages [28]. Other scholars also conducted similar studies in different situations [29] [30], and the results proved their correlation, but whether the correlation was positive or negative depends on different measured situations. McMahon and Harvey found that proximity, being one dimension of perceived moral intensity, does not have significant impact on moral behavior, while other dimensions have obvious impacts, and the manipulated moral intensity is also related with moral behavior [31].

1.3 Technology moral sense

All kinds of technical activities contain actor's purpose and concept of values, marking actor's moral emotion and responsibility consciousness. Therefore, this study introduces the concept of "technology moral sense" to explore people's perception of technical moral risk. The concept of technology moral sense was put forward on the basis of the thought of moral sense raised by Shaftesbury, Hutcheson, Hume and other scholars. Different from moral sense, technology moral sense is a reflection of technical ethics, discussing the influence of technology. Specifically, technology moral sense is a lasting and stable inner experience caused by people's reflection of technology. It mainly includes three dimensions: 1) technology moral consensus, which means technology should have basic and universal ethical principle; 2) technology moral emotion, referring to people's emotional state brought by technology; 3) technology moral cognition, meaning people's moral judgment of technology.

How technology moral sense performs a mediating function can be analyzed from the three dimensions of technology moral sense. The first dimension is technology moral consensus. The development of technology will bring far-reaching influences to all mankind, so all the human beings should reach a unified and unchanging consensus. The basis of technical moral consensus is a universal common interest, which is formed in the face of ethical issues raised by technology. It is generally agreed that technology is regarded as a new thing needed by the society. It should conform to the development of human society, and uphold human dignity. Reynolds and Ceranic verified that moral behavior comes from not only moral judgment, but also moral identity, that is to say, a universal moral consensus can affect moral behavior [32]. Bennett and Blaney studied the relationship between moral consensus and moral intensity [33]. They provided respondents with supplementary material about moral consensus, enhancing their moral intensity.

The second dimension is technology moral emotion. As an external perception, emotion will trigger people's technical moral perception, which is also an expression form of technology moral emotion. Technology moral emotion exerts invisible influence of moral events on people, which has not reached the behavioral level. It is mainly reflected in uncomfortable emotions as a reminder of emotional state when applying technology [34]. Moral emotion is also correlated with moral behavior, for example, Tangney et al. extended the study of the connection between moral emotion and moral behavior [35]. Some scholars also studied the relationship between the attribution of moral emotion and moral behavior [36]. At the same time, a study on human resource management shows that moral intensity and moral emotion can affect people's moral behavior [37], thus determining the correlation between technical moral emotion and moral behavior.

The third dimension is technology moral cognition. it differs from person to person. For example, some people think that algorithmic recommendation is convenient, while others may hold that algorithmic recommendation places them in a "information cocoon", preventing them

from obtaining information. Different moral cognition will cause different moral sense, and even affect people's moral behavior. Blasi analyzed previous literatures, and set up a bridge between moral cognition and moral behavior [38]. Other scholars studied the role of moral cognition, then predicted that people's behaviors will be pro-social and aggressive [39]. Some scholars discussed the importance of moral intensity in shaping people's concepts and motivating their actions, concluding that people with prior knowledge are more likely to seek opportunities at high levels of moral intensity [40], so the combined effect of cognition and moral intensity can affect moral behavior. As a kind of moral cognition in a specific situation, technology moral cognition has an obvious impact on moral behavior under the influence of moral intensity.

In summary, technology moral sense can be divided into three dimensions, that is technology moral consensus, technology moral emotion, and technology moral cognition. In terms of content, technology moral sense is the organic combination of the identification and judgment of technology moral problems. We further put forward that technology moral sense is a reflection on the application of technology. Previous researchers held that the first three stages of moral behavior, directly or indirectly, have a certain relationship to the last stage, which also shows from the influence technology moral sense has on moral behavior.

In traditional social environment, moral behavior is mainly influenced by moral intensity and other factors. However, considering the complexity and particularity of artificial intelligence technology, the internal technology moral sense may also become an important factor to interfere with moral behavior. Therefore, we set up several situations of artificial intelligence technology application, exploring whether moral intensity still have an influence on moral behavior, and introduced technology moral sense as an intermediary variable to the theoretical model. As you can see in **Fig. 1**, we finally concluded that technology moral sense will play a mediate role in moral intensity and moral behavior.

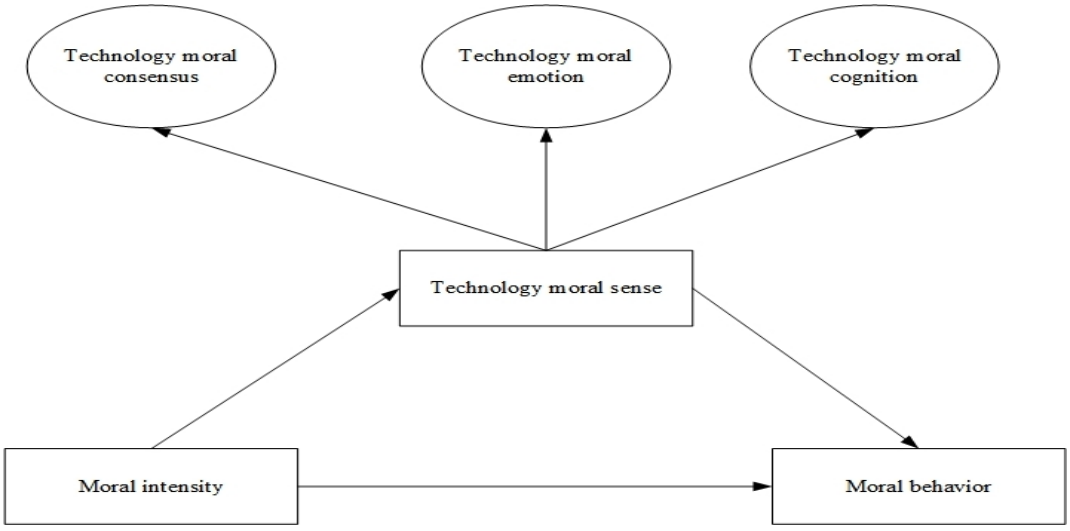

Fig. 1. Theoretical hypothetical model

In the experimental design, we selected situations relatively familiar to respondents, mainly involving artificial intelligence technology. The situations included the collection of personal information through APP, big data discriminatory pricing, algorithm recommendation news, the use of intelligent devices, intelligent monitoring, autonomous driving, etc. We designed a

major person and related events in each situation, and asked respondents' opinions, predicting their behaviors, which helps the experimental participants to substitute themselves, so as to obtain the most reliable data results. We randomly ordered the six contexts in order to eliminate the interference, and the multiple contexts can avoid the contingency of a single technical situation. Studying the influencing factors of moral behavior in the situation of applying artificial intelligence technology can effectively predict the developing trend of people's moral behavior, therefore further preventing major social risks.

Past researches mainly focused on the influencing factors of moral behavior, but those factors have not yet been verified in technology application situations. Furthermore, questions like whether moral intensity still has influence on people's moral behavior, whether technology itself could affect people's moral behavior, and what effect technology moral sense has on moral behavior, still need to be further studied.

2. Method

2.1 Research design

This study adopted situation experiment method. The contents of questionnaire were determined after several discussion from experts. Firstly, according to the common technology, we selected technology application situations that fit actual life. Familiar situations help participants understand the content easily, therefore, we could measure variables more accurately. We chose to use the moral intensity scale and the technology moral sense scale when designing our questionnaires, both using 7-point Likert-type scale. Secondly, after introducing the research background of this study to participants, we issued the experimental questionnaire, and the six situations designed were randomly distributed to participants to avoid interfering with the participants' judgment. Finally, we let participants make moral or immoral behavior choices according to the described technology application situations.

In this study, questionnaires were distributed to the participants through credamo software (independently developed by Beijing Yishu Model Technology Co., LTD.). A total of 356 experimental questionnaires were collected, 352 valid questionnaires, and the effective rate of the questionnaires was 98.9%. Participants were 352 students from a university in eastern China. The participants were 284(80.3%) girls and 68(19.7%) boys. The majority of the participants were between the ages of 18 and 35 years (96.9%), postgraduate 190(87.6%), and social science 122(56.2%) students. The project was approved by the University Research Ethics Committee, and we had obtained consent before collecting their personal data.

2.2 Measure

Moral intensity scale which contains six items was first proposed by Jones. It has been repeatedly confirmed in subsequent studies and is the most widely used questionnaire in the academic community. In this study, we used this six-item scale, which has high reliability and validity in Chinese. We set up multiple technology application situations to study the relationship between moral intensity and moral behavior, for example, we set the situation case of "big data discriminatory pricing,"— "wang bought a membership card on a shopping platform, and the platform has stored a lot of his past shopping consumption record. By accident, wang found the price of the coat he bought is higher than that of his friend who bought a same coat without membership card. Please read the above paragraph, and evaluate

the following views." Six situations were randomly ordered, using Jones's moral intensity scale, and all items were scored on a 7-point scale (11= very disagree, 7= very agree). The Cronbach alpha coefficient of the six contexts were 0.91,0.92,0.91,0.89,0.89, and 0.92, respectively.

Technology moral sense was measured with scale can be divided into three dimensions, namely technology moral consensus, technology moral emotion, and moral cognition, including 17 topics, which have been proved their reliability and validity in Chinese samples. All questions were scored on a 7-point scale (1 = strongly disagree, 7= strongly agree). The higher the score, the higher the level of technology moral sense the respondent had. In this present study, Cronbach alpha was 0.78.

Moral behavior is a part of the four-component model of moral behavior proposed by Rest. Previous studies have not found a relevant scale to measure moral behavior in a specific situation, but set items like "I can accept the technical behavior" according to the items set to measure moral cognition and moral intention. In all situations, the items were scored on a 7-point basis (1 = very disagree, 7= very agree). The lower the score, the more likely the respondent tend to make ethical behavioral choices.

2.3 Analytical procedure

A series of analytical procedures were performed to ensure the quality of the data. First, we examined missing data patterns using Little's "missing completely at random" (MCAR) test ($\chi 2$ =211.896, df = 229, p= .867), subsequently, treated the missing data with full information maximum likelihood [41]. Also, the presence of common method variance (CMV) [42] was assessed using Harman's one factor analysis. The result accounted for 34.10% of the total variance, indicating no serious common method bias issue.

Second, descriptive statistics, inter-constructs correlation, and measurement model utilizing confirmatory factor analysis (CFA) were computed see

Table 1 To evaluate the models' fit, Hu and Bentler's Chi-Square statistics ($\chi 2$) [43], the Root Mean Square Error of Approximation (RMSEA $\leq$ 0.08), Comparative Fit Index (CFI $\geq$ .90), Tucker–Lewis Index (TLI $\geq$ .90) and Standardized Root Mean Square Residual (SRMR $\leq$ 0.08) were used as fit indices for both measurement and structural models. Last, to test the study hypotheses, structural equation model (SEM) was conducted to assess the various relationships between the studied constructs. SEM can combine and estimate all effects in one complex model and provide precise and consistent findings for the studied variables [44]. All analyses were conducted with Mplus version 8.3 utilizing maximum likelihood estimation.

3. Results

3.1 Measurement model

The measurement model revealed a good fit to the data ($\chi 2$ = 2186.56, df = 1099, $\chi 2$/df = 1.04, CFI = .93, TLI = .92, RMSEA = .05, SRMR = .06). Again, the discriminant validity showed that average variance extracted (AVEs) (.57 $\leq$ AVEs $\leq$ .70) were greater than mean shared variance MSVs (.14 $\leq$ AVEs $\leq$ .46), and the square root of AVE ($\sqrt{}$AVE) (.76 $\leq$ $\sqrt{}$AVEs $\leq$ .84) were also greater than inter-construct partial correlations (-.68 $\leq$ r $\leq$ .47). Convergent validity was achieved as AVEs were greater than .50. Finally, the constructs' internal

consistency reliability (.78 ≤ α ≤ .92), and composite reliability (.78 ≤ CR ≤ .92) met the threshold (see **Table 1**).

Table 1. Descriptive statistics, reliability and validity, and partial correlation

	CR (α)	VE	SV							0	1	2
1. Moral1	.91 (.90)	64	22	802								
2. Moral2	.92 (.92)	68	22	28***	825							
3. Moral3	.91 (.91)	64	46	42***	41***	803						
4. Moral4	.89 (.88)	62	38	30***	42***	44***	787					
5. Moral5	.89 (.89)	63	14	29***	34***	37***	33***	793				
6. Moral6	.92 (.91)	70	34	32***	24***	47***	41***	33***	838			
7. Technology	.78 (.78)	57	46	.47***	.47***	.68***	.62***	.37***	.58***	758		

8. Behavior1	.49***	.22***	.45***	.27***	.21***	.39***	.44***					
9. Behavior2	.16**	.49***	.35***	.25***	.22**	.24***	.37***	.25***				
10. Behavior3	.38***	.41***	.63***	.30***	.30***	.33***	.54***	.37***	.35***			
11. Behavior4	.28***	.38***	.43***	.55***	.28***	.29***	.59***	.42***	.29***	.47***		
12. Behavior5	.21***	.23***	.36***	.27***	.33***	.27***	.38***	.45***	.26***	.31***	.42***	
13. Behavior6	.34***	.11**	.26***	.10**	.02	.27***	.27***	.29***	.11**	.18***	.15***	.17***
Mean	.86	.05	.72	.95	.03	.48	.32	.32	.50	.58	.41	.34
SD	.38	.44	.43	.30	.33	.49	.22	.84	.05	.81	.86	.98

Note: SD= standard deviation, CR= composite reliability; α= Cronbach's alpha; AVE= average variance explained; MSV= maximum shared variance, the diagonal values are square root of AVE.

*p < .050, **p < .010, and ***p < .001.

3.2 Structural equation model: Mediation analysis

Using SEM, the mediation model was conducted to explore the relationship between moral intensity and moral behavior through technology using a biased-corrected bootstrapped method with 5,000 samples and 95% confidence interval (CI). The model showed good fit to the data ($\chi2$ = 2602.05, df = 1381, $\chi2$/df = 1.88, CFI = .93, TLI = .92, RMSEA = .05, SRMR = .06). The direct relationships were first examined, the results indicated that moral intensity 1 significantly related to behavior 1 (β = -.33, p < .001), moral intensity 2 significantly predicted behavior 2 (β = -.39, p < .001), moral intensity 3 significantly predicted behavior 3 (β = -.48, p < .001), moral intensity 4 significantly predicted behavior 4 (β = -.36, p < .001), moral intensity 5 significantly predicted behavior 5 (β = -.22, p < .001). Again, moral intensity 1 significantly related to technology (β = -.15, p < .01), moral intensity 2 significantly predicted technology (β = -.12, p < .05), moral intensity 3 significantly predicted technology (β = -.35, p < .001), moral intensity 4 significantly predicted technology (β = -.27, p < .001), and moral intensity 6 significantly predicted technology (β = -.24, p < .001). Moreover, technology significantly predicted all the behaviors from 1 to 6 (β = .34, p < .001; β = .22, p < .01; β = .25, p < .001; β = .39, p < .001; β = .32, p < .001; and β = .28, p < .001) respectively.

Further, the indirect effect of moral intensity on behavior through technology revealed significant for behavior 1 (β= -.05, 95% CI [-.101, -.016]), behavior 2 (β= -.03, 95% CI [-.068, -.003]), behavior 3 (β= -.09, 95% CI [-.168, -.041]), behavior 4 (β= -.10, 95% CI [-.180, -.054]), and behavior 6 (β= -.07, 95% CI [-.135, -.026]). Because the direct relationships between moral intensity and behavior 1 to 4, we henceforth established that technology partially mediates the relationships between moral intensity and behavior 1 to 4, but fully mediates the relationship between moral intensity 6 and behavior 6 (see **Table 2**).

Table 2. Indirect effect of moral intensity on behavior, via technology

	Estimate		95% CI	
Indirect Path	**Standardized**	***SE***	**Lower**	**Upper**
Technology				
Moral intensity1 → behavior1	-.05*	.02	-0.101	-0.016
Moral intensity2 → behavior2	-.03*	.02	-0.068	-0.003
Moral intensity3 → behavior3	-.09**	.03	-0.168	-0.041
Moral intensity4 → behavior4	-.10**	.03	-0.180	-0.053
Moral intensity5 → behavior5	.01	.02	-0.035	0.045
Moral intensity6 → behavior6	-.07*	.03	-0.135	-0.026

*p < .050, **p < .010.

4. Discussion

In this study, we explored the internal mechanism between moral intensity and moral behavior in multiple situations of applying artificial intelligence technology, and put forward technology moral sense as a new variable, trying to verify whether it plays a mediating role. **Table 1** shows that moral intensity affects people's moral behavior in various degrees. In six cases including collecting personal information through APP, big data, algorithm recommended news, intelligent devices, intelligent monitoring, automatic driving, the data of moral intensity and moral behavior is relatively stable and interlinked. With the change of perceived moral intensity, moral behavior changes obviously. In addition, technology moral sense also affects moral behavior. In almost all cases, technology moral sense predicts people's moral behavior, but predictions are not consistent in different cases. Scholars have also found the inconformity of variables in different cases [45], but it does not eliminate the correlation among variables. Moreover, moral intensity and technology moral sense are also mutually linked. Finally, **Table 2** shows that technology moral sense plays an intermediary role between moral intensity and moral behavior. Except for the fifth situation (intelligent monitoring situation) where technology moral sense does not play an intermediary role, the data of other five situations all show that moral intensity affects moral behavior by technology moral sense.

4.1 The findings of this study are explained as follows

Firstly, the results show that the moral intensity is associated with people's moral behavior, which means that as the perceived moral intensity increases, people will more intend to avoid the immoral behavior. This result was consistent across all cases. There is a significant correlation between moral intensity and moral behavior, which suggests that moral behavior is still influenced by the characteristics of moral problems. This finding confirms the study of Jones et al., proving that moral intensity scale is applicable in the technical context. Although some scholars further designed the scale, classifying the original six dimensions into two or three dimensions, the substance of the measurement remains unchanged, thus, proved once again the scientific of Jones' scale.

Secondly, considering the inconsistent internal characteristics of human beings, we tried to explore the relationship of technology moral sense and moral behavior. As is shown, technology moral sense is related with moral behavior, with the increase of technology moral sense, people's technology moral consensus, cognition and emotion are more inclined to agree that Science and technology should develop for the better. This result verifies the validity of the technology moral sense scale for the first time, and also confirms the practical significance of technology moral sense. Although in the big data discriminatory pricing situation, there is a negative correlation, the results of the other five studies all show the positive correlation. This may be due to the differences of ethical and moral speech in the information technology community today, especially about privacy.

As for technology moral sense, we tried to discover its relationship with moral intensity. Nowadays, with the rapid development of artificial intelligence, technology moral sense, as a new concept, is actually a reflection on the risks raised by technology. When moral intensity changes, technology moral sense will also change, that is to say, there is a significant correlation between the two, which is shown in all the six situations. If we change the way we express technical moral situations, people's technology moral sense will also change.

Finally, we concluded that the influence of moral intensity on moral behavior will be mediated by the technology moral sense. This is confirmed especially in the cases of

autonomous driving. The remaining situations also show the intermediary role technology moral sense plays. Although the mediation effect is not obvious in intelligent monitoring case, the remaining cases all confirm the mediation effect of technology moral sense.

Our research focused on the mediating role technology moral sense plays between moral intensity and moral behavior, accordingly having some innovation. On the one hand, several popular AI technology application cases were selected in research design, which were not covered by previous studies. In the contexts of applying artificial intelligence technology, we found that moral intensity still has a significant impact on moral behavior. On the other hand, we introduced a new variable namely technology moral sense, and use technology moral sense scale for the first time. With the advent of technological societies, people's awareness of risk raised by science and technology is awakening, which is of great significance.

4.2 Limitations and future research

However, some limitations should be noted. The first is that the scope of selected research subjects need to be expanded. The subjects of our study are limited to college students in China, thus this study cannot represent the majority of people; The second shortcoming concerns the design of the questionnaires which have comparatively excessive content, and our experimental method has high requirements for time, so follow-up studies can further modify and improve the questionnaire. Future research can select other respondents, especially tech workers, for their moral behaviors in the process of developing and designing program have been the focus of society.

5. Conclusion

Through combing previous literature, Jones put forward the concept of moral intensity, then more and more scholars began to study the influence of moral intensity on moral decision-making. As the last stage, moral behavior will directly affect the results of moral decision-making. Previous scholars have found that moral intensity can significantly affect moral behavior in traditional situations. This study further confirmed this opinion in several situations of applying technology, which is an extension in a new field. In addition, since human is the product of society, the development of science and technological is bound to have a certain impact on people's ideology. People's reflection on the new moral risks brought by artificial intelligence technologies such as big data, algorithms, and intelligent surveillance, etc. brings a new variable to this research, that is technology moral sense. After introducing this variable, we found that moral intensity would first affect technology moral sense, and then influence moral behavior through technology moral sense. Based on previous literature, we concluded that technology moral sense is an intermediary variable, and verified the feasibility and scientific of the technology moral sense scale. Regretfully, in the intelligent surveillance situation, personal technology moral sense did not serve as an intermediary, because intelligent surveillance technology are used in almost all fields of our daily life nowadays, and owing to the concealment of technology, people are likely to ignore the existence of this technology, and show an indifferent attitude. However, in other situations, technology moral sense all played an intermediary role. It was easier for people to notice the existence of technology in those situations. For example, although people are relatively unfamiliar with autonomous driving, they are more intuitive to this technology, and thus presenting higher sensitivity.

However, this does not prevent us from confirming the mediation effect of technology moral sense between moral intensity and moral behavior.

To sum up, in the age of accelerating technology, improving people's technology moral sense is of great importance. Technology moral sense contains the common consensus of technological development, and the cognition of the risk raised by technology. It is the catalytic product of science and technology consciousness, performing important guiding roles for people's moral behavior. Additionally, the moral intensity of the situation itself also has a constant influence on moral behavior. Taking moral intensity into consideration, and being aware of the technological risks during the process of technique design will also play a guide role in human behavior. All in all, in order to correctly deal with unpredictable risks brought by technology, it is urgent to pay attention to people's intention and moral sense when applying technology, and leads people to act correctly, hence ensuring that technology consistently progresses in a direction beneficial to human civilization.

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