

A Comparative Study of the Moral Reasoning Ability of Accounting Students

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Abstract: With an increasingly complex business environment in recent years, accountants have to face more and more complicated and frequently appearing ethical dilemmas. They need to make more professional ethics judgments. The ethics of accountants has become the important sector of accounting profession and the higher education. In particular, accounting students as the backbone of the accounting profession, its moral reasoning ability is of utmost importance, and the public has a higher psychological expectation of accountant moral reasoning. Based on previous research findings, this article aims to further develop theoretical research and analysis of ethical reasoning capabilities, and to quantify them, and develop accounting statements based on the Defining Issue Test (DIT). The ADIT (Accounting Defining Issues Test), a quantitative measurement method for the moral reasoning ability of our country's accounting students, is aimed at the students who are majoring in accounting majors in the second year and third year of a college. Through experiments and questionnaires, we compare and analyze the measurement results of the two. Under the same conditions, the P score of ADIT is higher than that measured by DIT. ADIT measures the moral reasoning ability of accounting students more specifically. Later we will devote to analyze and compare them deeply, so as to provide suggestions with stronger reference significance and propose what will do in the future.

1. Introduction

Nowadays, the national economy continues to grow, while many corruption phenomena inevitably breed. In order to obtain the maximum profits, enterprises do not hesitate to fake accounts to avoid high taxes and cheat more investment, which further aggravates the deterioration of accounting professional ethics environment [1]. At the same time, the reform of the education system has also entered a critical period. The college students majoring in accounting are about to enter the society. These future financial workers not only need to master the cultural knowledge and professional technology of the students majoring in accounting, but also need to receive the education of scientific professional ethics values, so that they can make appropriate decisions and behaviors in the face of the real dilemma. However, colleges and universities do not pay enough attention to the current situation of accounting professional ethics education and lack of reasonable teaching methods. The development and improvement of accounting professional ethics education in Colleges and universities face great challenges and pressures [2]. However, professional ethics education is a more serious work, so accounting professional ethics education should do something, and the theoretical system in China needs to be enriched and improved, and a lot of research work needs to be done.

At present, based on the relevant literature, western scholars have made remarkable progress in the study of accounting students' moral reasoning ability. They have conducted a lot of accounting moral research by using DIT (Defining Issues Test), and put forward many theoretical views and empirical findings that can be used for reference. In contrast, there are still some shortcomings in the study of accounting ethics in China, and there is a lack of quantitative experiments or questionnaires to explore the deep problems of accounting students' moral development.

In view of the above problems,, this paper explores the current situation of accounting students' moral reasoning ability, in order to provide rational analysis and help strengthen the construction of

moral education. However, the concept of morality is too abstract to be controlled in practical application and evaluation. The main goal of this paper is to develop a new measurement method, ADIT (Accounting Defining Issues Test), by improving the relevant measurement methods and learning from foreign mature theories and research methods. At the same time, a comprehensive comparative experimental study is carried out in order to further expand the measurement method of moral reasoning ability, put forward suggestions and measures for improving the level of accounting students' moral reasoning. It will provide reference for the follow-up related research. In the long run, it will be conducive to the stability of market order.

This paper is structured as follows. The next section reviews the literature on the moral reasoning and the measurement method of accounting students' ability of moral reasoning, we will define these related concepts. Following this, according to the DIT, the paper will develop a new ADIT, which can make up for its shortcomings. The subsequent section presents the methodological aspects of this research. We will do a questionnaire survey about students' moral reasoning and conduct the results of the statistical analysis in this study. The paper concludes by discussing the findings, outlining implications for research and management, in addition to the limitations of the study and future research directions.

2. Literature Review

2.1 Moral Reasoning

A famous moral psychologist, Kohlberg pointed out that moral cognition is the cognition of right and wrong, good and evil and their practical significance, while moral reasoning is a higher level of moral cognition [3]. It is a form of moral thinking that the subject uses the existing moral concepts and moral knowledge to deduce another moral judgment from one or several moral judgments, that is, the moral subject has mastered certain moral concepts and knowledge. And on the basis of the former judgment, a new and more comprehensive thinking form of moral judgment is made to determine whether the specific behavior in the dilemma is justified [4]. Huang Fufeng believes that moral reasoning can help individuals get rid of the confusion and hesitation in moral problems, so as to improve their moral freedom [5].

The theory of cognitive development of morality (CMD) was put forward by Kohlberg. The theory holds that individual moral development is a necessary process from low to high, from heteronomy to self-discipline. Based on Jean Piaget's dual research method, Kohlberg put forward the research method of moral judgment interview (MJI). By setting up moral conflicts in the dilemma situation, he raised moral issues and reflected individual moral cognitive development level through their viewpoints. Kohlberg developed nine hypothetical dilemmas and put forward the famous "theory of moral reasoning stage". The theory presents three levels of moral development, with each level subdivided into two stages as summarized in Table 1.

Kohlberg's theory of moral development suggests that that an individual's morality evolves and changes with time. Dellapotas and others believe that future professionals can also improve their moral development level [6]. After CMD was put forward, Rest, a student of Kohlberg, thought that Kohlberg's theory certainly had some problems and shortcomings. After 20 years of research and on the basis of inheriting the essence of Kohlberg's theory, Rest and his colleagues further developed and established the Neo-Kohlbergian theory, claiming that there might be multiple moral tendencies coexisting in a certain period of moral development [3].

According to the theory of classical moral psychology, the important determinant of moral behavior is moral reasoning. Wu Peng uses the meta-analysis method of random model to find that moral reasoning has a significant positive correlation with moral behavior, and a significant negative correlation with unethical behavior. It can be said that individuals with high moral reasoning level are more likely to implement moral behavior, and also more likely to inhibit unethical behavior [7].

Table 1 Kohlberg's stages of moral development

level	stage	Description
Level 1: Pre-conventional	Stage 1: Avoid punishment and obey the guidance.	Make decisions to avoid punishment and unconditional submission to norms and authority according to your own standards.
	Stage 2: Guided by the relative utility of instrumentality.	A proper action is an action to meet one's own needs, and occasionally to meet the needs of others.
	Stage 3: It is guided by the harmonious and harmonious interpersonal relationship.	It holds that good behavior is to help others, make others happy, be praised by others and other behaviors to meet the public expectations.
Level 2: Conventional	Stage 4: Guided by compliance.	It holds that the authority of law is supreme and obeys all kinds of laws set by the public as moral norms, and to maintain social order by authority and laws.
	Stage 5: Guided by social contract.	Some social contracts such as laws are relative, and "just" social contracts should be abided by. Laws are not single rules and can be changed flexibly.
Level 3: Post-conventiona 1	Stage 6 Guided by general ethics.	The individual judgment in this stage is not constrained by external laws and regulations, but based on unwritten moral principles with broad significance.

Source: (Kohlberg, 1984).

2.2 Accounting moral reasoning

Accounting ethics is the embodiment of general social morality in accounting work, which guides and restricts accounting behavior, and adjusts the relationship between accountants and society, accountants and different stakeholders. According to the literature review about the ability of moral reasoning, it is not difficult to understand that the ability of accounting moral reasoning is a psychological process for accounting to solve specific and complex moral dilemmas[8].

The industry of accounting and accountant exists and develops for establishing and maintaining the principle of honesty and credit in the market[9]. The moral quality of accountants is neither innate nor spontaneous, but formed through long-term learning and a posteriori training. When caught in a complex market environment and career dilemma, they are able to make appropriate ethical decisions[10]. In the current complex business context, the improvement of accountants' moral reasoning and behavior has become an important issue concerned by the accounting and higher education circles. Chen xiaoqin believes that college students majoring in accounting need to form new moral concepts through professional moral education and training, so as to better deal with complex multi-value conflicts, and then properly deal with moral dilemmas encountered in life[11].

M. Mohamed Saat participated in a longitudinal study of 113 accounting students from six Malaysian universities through two forms of intervention, including special ethics courses and subsequent practical training[12]. It was found that accounting courses can improve the level of ethical judgment, and practical training has made a significant contribution to the observed improvement. Tara J. Shaw's research shows the benefits of accounting ethics education and provides evidence support for ethics education included in advanced accounting courses[13]. In this paper, we hope that the survey results can promote the ethical integration of accounting courses, introduce moral ideas in the early stage of degree courses, conduct moral discussions in the existing accounting courses, and integrate the previous ethical materials in the professional moral courses.

Daniel P. Sorensen studied the influence of accounting ethics education intervention in line with Adam Smith's moral philosophy, And he found that this kind of intervention can have a positive impact on the development of accounting students' personal morality[14].

It can be seen that it is urgent to strengthen the cultivation of accounting students' moral reasoning ability to provide high-quality accountants for the country and society.

2.3 Measuring tools——Defining Issue Tests (DIT)

About the measurement tool of moral reasoning ability, Rest is inspired by Kohlberg's research method of "moral judgment interview", and then the "Defining Issues Test (DIT)" is developed, which simplifies the experimental process and improves the validity of the experiment.

At the stage level, DIT includes six moral dilemmas, highlighting a certain moral dilemma. Behind each situation, there are 12 items representing different levels of moral reasoning. Students are required to evaluate the importance of each item in each dilemma, including five grades. In each situation, students are required to rank the most important four items after rating each statement. The scores of evaluation and ranking will determine the moral type of the subjects. According to DIT, researchers can calculate three kinds of scores of a subject: D, P and M. P-scores are used to evaluate the proportion of subjects who tend to be principle oriented when they make moral decisions in the face of dilemma, which are used in relevant research. The p-score is evaluated by the score of the third level (i.e. stage 5&6) of Kohlberg's moral development involved in the "most important" questions of the subjects. The specific calculation formula is: $P = \frac{\text{the stage 5 score} + \text{the stage 6 score}}{60} * 100\%$. (the short version of DIT includes three dilemmas, $P = \frac{\text{score of the stage 5} + \text{score of the stage 6}}{30} * 100\%$, and this paper adopts the short version). D-score is formed by improving the DIT score, making full use of the scores of each stage, and carrying out weighted comprehensive processing. M-score is the most important score of M-question. Since then, the validity of the questionnaire has been judged. In the standard procedure, if the score of M-item is more than 8, it will be eliminated.

In the later research, Rest improved continuously for DIT defects, mainly in three aspects: the update of the dilemma story and its item content, the improvement of index calculation method and the change of the method of screening unqualified subjects. The P-score is replaced by N2, which is composed of two parts: the priority degree of principle moral items, and the low proportion of items in the total score in the lower stage compared with the higher stage[15].

To sum up, in the past 20 years, on the basis of DIT, western scholars have made remarkable progress in the study of accounting students' moral reasoning ability. A large number of previous empirical studies abroad have proved the validity and reliability of DIT. DIT plays an important role in the study of accounting moral related issues, which has a positive significance for moral education in China[16].

In view of the easy management of deterministic problem testing, it has been widely used in accounting research[17]. The most common research content is to use DIT to evaluate the ability of moral reasoning. DIT usually uses the dilemma situations in daily life and is applied in various fields. As a broad sense of personal moral level test, it is possible. However, for accountants, these situations are lack of relevant professional characteristics, lack of judgment and behavior in specific accounting situations. These are quite different from the real business situation, which will affect the measurement effectiveness of DIT in the accounting situation.

Many scholars also consider the specific accounting situation in accounting ethics, and think about the question whether DIT can measure the real level of moral reasoning of accountants[18]. Shaub proposed that we should develop some situations with clear accounting background, such as audit, tax, consultation, etc[19]. Bailey et al. put forward that in the study of accounting moral judgment, we should pay more attention to intermediate concepts (ICMS) to test the level of moral reasoning related to a specific occupation, which can be based on the use of DIT, supplemented by the measurement of intermediate concepts, so as to more comprehensively reflect the level of moral judgment of the subjects and expand our understanding of the accounting professional moral reasoning ability in a specific accounting situation[17]. It can be seen that the context in DIT needs to

be further improved and real business context should be considered.

2.4 Accounting situation and DIT

Context is an indispensable prerequisite for DIT. Situation plays a very important role in the study of business ethics. Welton believes that the existence of business moral dilemma and common moral dilemma is not the same, because different situations have different characteristics, so we need to further explore the level of moral reasoning in business situations[20]. Welton encourages students to consider the teaching method of ethical impact of business decision-making. Based on the rest questionnaire, Welton develops professional test instruments, including four scenarios for designing different aspects of accounting professional environment. Each scenario has 12 statements, corresponding to Kohlberg stage 2-6. Five point assessment to identify the four most relevant. The top four are all important, with weights and stages combined to produce stage and level scores.

Throne developed an accounting professional ethics measurement method based on DIT. This method is measured by the actual moral dilemma. Accounting scenarios are six cases found from the traditional DIT. The test results of this method are compared with the results of the traditional DIT. It is found that the accountants do not solve the ethical dilemma in their cognitive moral ability, and the specific accounting measures based on moral reasoning may help to promote the accountants to solve the moral dilemma[21].

In addition, Fleming et al. found that in two dilemmas involving cultural characteristics, the moral reasoning ability of Chinese students is significantly lower, while in the absence of cultural characteristics, the moral reasoning level of Chinese students is slightly higher than that of the United States, which shows that cultural differences play an important role in the moral reasoning ability[22]. Anne L. Christensen et al. reviewed the applicability of DIT to the ethical research of accounting students through meta-analysis[23]. The results show that DIT can help to assess the relevant scope of accounting students' moral reasoning ability. At the same time, the research shows that moral education is effective only when it embeds teaching in accounting course, and doesn't support the effect of independent ethics course. DIT is a convenient and reliable measure, which is often used to study ethical choice, but our results show that DIT does not cover all dimensions of ethical decision-making process. On the contrary, its applicability must be carefully designed in the light of research problems and methods.

In this way, DIT has the advantage of wide application range and quantifiable measurement results, but it is not applicable to all ranges. DIT will be affected by different social environments, that is, social situations, so the reliability and reliability of measurement results will be greatly reduced. Therefore, it is very important to develop a specific ADIT which is suitable to measure the moral reasoning ability of accounting students in China.

Based on the above analysis, DIT, as an empirical measure, is also an intervention to actively promote the development of moral reasoning, because Matthew J. Mayhew and others found that students would reflect on the consequences of moral behavior when they study DIT[24]. From the perspective of the existing measurement tools of accounting professional ethics, the lack of moral sensitivity of accountants to the moral dilemmas in these situations does not reflect their real moral judgment ability. Therefore, it is necessary to measure the level of moral thinking used to solve business-related problems and integrate more relevant and attractive accounting situations into DIT. This can expand our understanding of the reasoning ability of accounting professional ethics in specific accounting situations. Therefore, it is necessary to develop a new measurement tool, ADIT, based on the DIT.

3. Experimental Tools Development

3.1 Methods of Accounting Students' Moral Reasoning Ability in General Situations (DIT)

DIT is an objective and easy to quantify moral development evaluation method, which can overcome the difficulty of Kohlberg's "moral judgment interview" in management and

scoring[25]. The DIT consists of six moral dilemmas (three moral dilemmas in the short version of the DIT scale). Each moral dilemmas consists of 12 questions, which are mainly based on Kohlberg's "three levels and six stages". Therefore, each question corresponds to each other, except for stage 1, because the subject is an accounting major college student, and stage 1 of CMD is relatively low, which is not considered in the itemParagraph. In this paper, a questionnaire survey is used. Because there are many questions, the students who participate in the questionnaire may have antipathy, which affects the validity of the questionnaire, so a simple version of DIT scale is used. Three classic moral dilemmas are: "Heinz stealing medicine", "prison break Prisoner" and "newspaper". Taking the dilemma situation of "escaped prisoners" as an example, the paper deconstructs the DIT scale. The level stages corresponding to the 12 questions in the moral dilemma story are shown in Table 2 below:

Table 2 Correspondence of items in the situation of "escaped prisoners"

CMD		Item
Level 1	Stage 1	-
	Stage 2	7,9
Level 2	Stage 3	1,4,12
	Stage 4	2,10
Level 3	Stage 5	3,5
	Stage 6	6,8
M question		11

The M question has nothing to do with the content of the dilemma. It is mainly used to test whether the subjects answer the questionnaire seriously to judge whether the result is effective. Each dilemma is divided into two parts. In the first part, on the basis of reading the dilemma story, the subjects need to judge the importance of 12 questions that affect Mrs. Jones's decision-making of "whether to report" in order of "extremely important", "very important", "relatively important", "low importance" and "unimportant". Then, entering the second part, we have to select the four most important aspects that affect Mrs. Jones's decision-making of "whether to report". According to the order of importance, "the first important", "the second important", "the third important" and "the fourth important", the scores are 4, 3, 2 and 1 respectively. In this way, the total score of each story is 10 points, and the total score of three stories is 30 points. An example is as below:

	extremely important	very important	More important	Low importance	Unimportance
1、Has Thompson performed well for a long time enough to prove that he is not a bad guy?					

Fig. 1 An example of an item

$P = (\text{score of the stage 5} + \text{score of the stage 6}) / 30 * 100\%$.

D score is obtained by using the scores of each stage for weighted comprehensive processing[26].

Generally speaking, P-score is mainly for the items reflecting the moral content of the custom level (i.e. the 5th and 6th stages), which reflects the highest stage of the moral level of the subjects. Therefore, P-score is an effective index to measure the moral reasoning ability, and also the most commonly used evaluation score in the current accounting moral research[27].

3.2 Development of an Accounting Defining Issue Tests (ADIT)

A large number of previous empirical studies abroad have proved the validity and reliability of DIT. However, according to the previous literature review and analysis, DIT in general situation is not suitable for the measurement of accounting students' moral reasoning ability. Therefore, under the modern economic situation and background, it is necessary to develop measurement tools suitable for accounting students in China.

ADIT is improved on the basis of DIT, and also based on Kohlberg's "three levels and six stages" theory. The main difference lies in the choice of moral dilemma situation, the situation of ADIT and none of the situations. The content of the problem items that need to be chosen by the subjects is closely related to the accounting specialty. In order to better compare the results and effects between the two methods, ADIT inherits the structure of DIT, adopts three simple tests of moral dilemma, 12 items in each situation, corresponding to CMD, including M questions, to judge the validity of the test. Finally, P-score is evaluated according to the same calculation method.

The choice of accounting situation is the most important and the most difficult link in the preparation of ADIT, because it is necessary to choose three most representative dilemmas with similar conflicts to replace the three general situations of DIT, so as to effectively carry out the horizontal comparison between DIT and ADIT.

3.3 Steps to prepare ADIT

First of all, read a wide range of literature, in-depth interpretation of DIT and classic accounting cases. We have a good understanding of the theory and method of the problem determination test. We sort out and summarize the cases related to accounting in the same way, summarize the most common moral dilemmas in practice, and finally select ten situational items.

Secondly, Based on the opinions of relevant accounting experts, six were selected from the ten scenarios selected in the previous step. The main content of interviews with experts is that there are often moral dilemmas in accounting practice that require accountants to make more difficult moral decisions. Seven situations that can better reflect the actual situation are selected from the alternative accounting situations. In view of these seven dilemmas, the second discussion of experts is carried out, and the last three situations are selected from the aspects of comprehensibility and operability.

Thirdly, develop 12 items after each dilemma accounting scenario. The item design of ADIT also continues the structural characteristics of DIT, and each item has the corresponding moral development stage of CMD. At the same time, it also considers the main influencing factors mentioned in the expert interview in the second step when making decisions in the face of difficulties. The first draft of the ADIT scale is completed after considering the details of the expression of the question wording, the order of the question structure and the format of the question content.

Last but not least, evaluate the first version of ADIT. Using expert interview, we invited three experts in psychology and pedagogy to comment on the first edition of ADIT. Mainly from a professional point of view of the evaluation tool, the scale was adjusted and modified, such as in order to avoid the subjects to realize that the purpose of the questionnaire is to test moral ability, delete some explicit wording, and more targeted for the subjects. Finally, the "method based on accounting situation" was finalized.

4. Research methods

4.1 Experimental process

According to the re-deconstruction of moral reasoning measurement tool in general situation and the determination of moral reasoning ability measurement tool ADIT based on accounting situation, this paper integrated the two methods into a questionnaire system as the two key parts of the questionnaire. In this paper, the two methods are combined into a questionnaire system as the two key parts of the questionnaire. Therefore, the content of this questionnaire is divided into three parts: the first part is the investigation and understanding of the basic personal information of the subjects. The second part is the mature simple version of DIT test questionnaire, such as the above question type of DIT deconstruction. The third part is the simple version of ADIT test questionnaire created in this paper, the question type is similar to DIT. The second and third part is the focus of the questionnaire, which tests the moral reasoning ability of the subjects. Please refer to the appendix for the content of the questionnaire.

In the experiment, the sophomores and juniors of accounting department of a university in Jiangsu

Province were selected as the subjects. Relying on the existing computer classroom, we designed an online questionnaire filling system to conduct an online survey of these students. This questionnaire survey adopts the centralized collection method, so that the subjects can answer questions in the centralized time period. Due to the relatively large number of questions in the questionnaire, and the possibility that the subjects do not know or have questions about the questions in the questionnaire, the volunteers made a unified statement before the test during the opening hours of the laboratory. At the same time, the volunteers were very clear about the requirements and contents of the experiment, and they also avoided giving too many explanations to the subjects, so as to ensure the smooth progress of the questionnaire collection.

With the help of Excel and SPSS, the statistics of the questionnaire results are convenient for later data processing and statistical analysis. This paper compares the two methods of DIT and ADIT by empirical analysis.

4.2 Data statistics and sample analysis

The subjects of this questionnaire survey are sophomores and juniors of accounting department. 165 questionnaires were collected. According to the principle that the total score of M is no more than 8 points, the invalid questionnaires are initially screened, and the final 149 questionnaires are obtained after elimination.

According to data statistics, there are 123 girls, about 82.6% of the total, and 26 boys, about 17.4%. As accounting is a liberal arts major, it is favored by more girls. Generally speaking, girls in accounting department account for more than half of the total number. Most of them are about 20 years old. About participating in courses and lectures related to accounting professional ethics, more than 85% of the students have only participated in one or two times. It can be seen clearly that accounting students in this school receive less education related to accounting ethics. As shown in table 3 and figure 2, we can clearly know the characteristics of this sample.

Table 3 The gender

Gender	Number	Percentage
male	26	17.4
female	123	82.6
Total	149	100.0

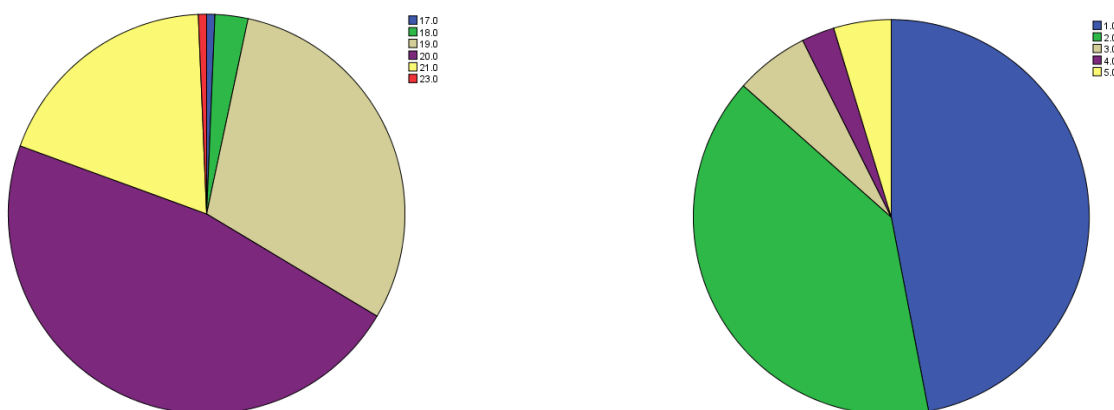


Fig. 2 The age and participation ethics related courses or lectures(accounting professional)

4.3 Reliability Analysis

Reliability test is an important part of the questionnaire analysis, which is to understand the reliability and validity of the questionnaire. In other words, reliability refers to the reliability of the measurement data. The more reliable a scale is, the more stable it is. The commonly used reliability test method is Cronbach's alpha. The questionnaire used in this paper is attitude and opinion questionnaire, which is more accurate for internal consistency estimation. Therefore, this reliability

analysis method is very applicable.

Generally speaking, the reliability coefficient of the total scale is better than 0.8, acceptable above 0.7, and the internal consistency of each factor is better than 0.6 to be acceptable.

In this paper, the SPSS is used to test the scales of DIT and ADIT respectively. The results also show that the reliability of DIT is indeed very good. The Cronbach's alpha coefficient tested by the innovative ADIT is 0.846, higher than 0.8, which means that its reliability level and internal consistency are quite good.

Table 4 Reliability statistics

Tool	Cronbach's alpha coefficient	Item number
DIT	0.763	36
ADIT	0.846	36

4.4 Validity Analysis

Validity refers to the degree to which the measured results reflect the content to be inspected. If the measurement results are more consistent with the content to be inspected, the higher the validity is; otherwise, the lower the validity is. In short, it refers to the accuracy and usefulness of the test.

Because DIT is more mature than ADIT, and has been confirmed and recognized by scholars. The reliability and validity of DIT are beyond doubt. Therefore, in this part, only ADIT validity is tested and described by SPSS. Kmo test and Bartley sphere test (kmo test coefficient > 0.5, P value < 0.05, the questionnaire has structural validity), and then exploratory factor analysis is carried out. This ADIT questionnaire contains three situations, namely, audit report, accounting adjustment and independent director's opinion. Factor analysis is conducted on these three aspects. This part of "audit report" is illustrated as an example. The inspection results are as follows:

Table 5 The Kmo and Bartlett test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.685
Chi-square test		279.455
Bartlett's test	DF	66
Saliency		0.000

Table 6 The rotated component matrix

Item	assembly			
	1	2	3	4
11	0.756	0.205	-0.191	0.097
2	0.694	-0.306	0.171	0.078
3	0.693	0.018	0.037	0.224
5	0.644	-0.131	0.295	-0.108
10	0.553	0.456	-0.095	-0.190
1	0.002	0.758	0.063	-0.001
12	-0.037	0.656	0.031	0.217
8	-0.007	0.631	0.244	-0.158
7	-0.057	0.082	0.757	0.041
9	0.347	0.183	0.638	0.170
4	0.142	0.106	0.295	0.786
6	-0.035	0.134	0.492	-0.580

As we can see above, the KMO is 0.685, greater than 0.6, and P value is $0.000 < 0.05$. The KMO and Bartlett's test results measured in this part are qualified and suitable for factor analysis. The setting of items is consistent with the objective to be inspected. Through the factor rotation of the maximum variance method, and combining the results of factor analysis of 12 items in this situation, the scores of items are reduced in four factors, as shown in table 7. Generally speaking, these 12 items can be summarized into four aspects. According to the table and the content of the questionnaire, the following two distribution tables can be obtained by combining the item with the common factor, Kohlberg's stage theory of moral reasoning.

From the two tables, the matching degree of the two tables is better, which shows that the validity of the part of "audit report" is better. It shows that the validity of ADIT is good, and it is consistent with the objective of this study. The other two parts of ADIT in this questionnaire have similar test methods, good validity, and are relatively stable and reliable, which will not be discussed in this paper.

Table 7 The distribution of common factors

Common factor	1	2	3	4
Item	11,2,3,5,10	1,12,8	9,7	4,6

Table 8 The corresponding CMD level

CMD level	Level 1	Level two	Level three	M question
Item	2,11	1,3,5,6	8,9,10,12	4

4.5 Comparative analysis

When the subjects accept the questionnaire, they do a set of test questions, and other irrelevant external factors are consistent, but the content of the two parts of the questions is different, and the results are less affected by other environmental factors. The results are as follows:

Table 9 The test results of DIT and ADIT

variable	Moral reasoning ability in general situation (DIT score)			Moral reasoning ability in accounting situation (ADIT score)		
	DIT-P1	DIT-P2	DIT-P3	ADIT-P1	ADIT-P2	ADIT-P3
male	0.105	0.171	0.364	0.531	0.432	0.393
female	0.085	0.144	0.353	0.562	0.449	0.409
Total	0.088	0.148	0.355	0.556	0.446	0.406

$P2 = (\text{score of the stage 3} + \text{score of the stage 4}) / 30 * 100\%$;

$P = P3 = (\text{score of the stage 5} + \text{score of the stage 6}) / 30 * 100\%$.

P1, P2 and P3 correspond to the moral level of CMD level I, II and III respectively, that is the pre-conventional, conventional and post-conventional. As a whole, the scores of ADIT are higher than those of DIT. The scores of DIT are increasing from P1 to P3, while the scores of ADIT are decreasing from P1 to P3. The two methods are quite different. The biggest reason lies in the different stories of the dilemma. DIT represents the general situation, applicable to all fields and aspects of life, while ADIT emphasizes the moral dilemma in the real business situation. It can be said that DIT represents an individual's comprehensive moral ability. When faced with moral problems, we can consider more from the basis of observing social norms of behavior, and also take moral principles and conscience as the basic basis of behavior. However, While ADIT contains specific moral dilemmas that students majoring in accounting are likely to face in the future, which cannot be reflected in DIT. Therefore, it is not difficult to understand that the score of ADIT decreases from P1 to P3, especially the P3 score, which is related to the nature of accounting major. Accounting activities depend on various rules and regulations, as well as the requirements of laws and regulations.

Therefore, no matter what the circumstances are, the importance of rules is emphasized, especially accounting education, which rarely transmits the critical and principled thinking of accounting problems to students. To some extent, it may hinder the development of accounting students' moral reasoning ability to a higher stage, that is, "guided by social contracts and general papers". Compared with DIT, ADIT is more targeted and can more accurately reflect the real moral reasoning ability of accounting students when facing difficulties.

Table 10 The comparison of P3 scores between DIT and ADIT

Gender	Dit-P3 (general situation)		ADIT-P3 (accounting situation)	
	average	standard deviation	average	standard deviation
Male (17.4%)	0.364	0.139	0.397	0.151
Female (82.6%)	0.353	0.148	0.409	0.154
Total (100%)	0.355	0.146	0.406	0.153

(P has been explained as an indicator of moral reasoning ability, P=P3)

From the comparison of P (P3) scores above, we can see that the average DIT score of boys is higher than that of girls, while the ADIT score of girls is higher than that of boys. However, due to the large difference in the proportion of men and women in this questionnaire, it may affect the comparison results. Therefore, whether there is an inevitable connection between the two needs to be explored. In this paper, this part will not be further analyzed.

In general, there are differences between the results of DIT and ADIT. And the moral reasoning ability of the subjects in the general situation is different from that in the accounting situation. The subjects scored 0.355 on the DIT and 0.406 on the ADIT. For both boys and girls, the score of ADIT is higher than that of DIT. The overall results show that the individual moral reasoning ability of accounting students in the accounting situation is higher than that in the general situation.

According to the analysis, DIT is widely used abroad. Many scholars have conducted in-depth research on different levels of accounting students' moral reasoning ability by using DIT. Generally speaking, the P-score of the study abroad is between 0.36-0.38, but the score of this paper has not been achieved. There may be two reasons. Firstly, education in China doesn't pay more attention to moral reasoning ability. The overall moral reasoning ability level of students is not good, the cultivation and education of this aspect have to be improved. Secondly, the previous analysis also shows that DIT is compiled by foreign scholars according to their social conditions, while the national conditions in China are different from those of foreign countries. Also, the cultural backgrounds are different from that abroad. Thus, the different situations will largely affect the test results. In other words, the test results may be biased.

On the other hand, the level of the ability of moral reasoning tested by ADIT is higher than the score of general situation, and also higher than the general test results of foreign countries. In depth, it shows that the definiteness test scale developed in this paper effectively measures the accounting students' ethics reasoning ability, which is more targeted and effective than the general situation.

According to Kohlberg's theory, P-score is the 5 and 6 stages, that is, the third level score, which is the highest level. When individuals judge right and wrong, they tend not to be limited by external laws and single rules, forming moral principles with universal significance such as righteousness and conscience. In this stage, the individual's moral reasoning ability is the highest. Accountants lay particular emphasis on abiding by laws and regulations and accounting standards, which corresponds to the second and third stages of Kohlberg's moral reasoning stage because of the characteristics of accounting profession in real life. For the accounting students who are mostly studying on campus, they just enter the workplace and face the dilemma of accounting in the accounting situation and will make more decisions according to the rules and responsibilities.

As a result, the subjects can show higher moral reasoning ability in the specific accounting situation. Therefore, the accounting students are supposed to participate in the moral education in the University, including various forms. The most effective way is to learn from real cases, or often

participate in practice activities to improve their moral reasoning ability.

5. Conclusion

This paper makes a deep analysis on the comparative study of accounting students' moral reasoning ability, mainly focusing on the different comparison of the two measurement methods. DIT is a classical scale of moral reasoning ability in general situation. According to the DIT, this paper integrates the theoretical knowledge, economic environment and cultural background in China to develop the moral reasoning ability in accounting situation. It is mainly used to study the moral reasoning ability of accounting professionals in China. This paper mainly uses questionnaire survey to collect data from accounting college students in Jiangsu Province. And it investigates the different results of the two methods. The research shows that the reliability and validity of ADIT scale are higher than that of DIT. ADIT is more targeted to measure the moral reasoning ability of accounting students than DIT, which is a general situation measurement method. ADIT can be an effective tool to quantify the moral reasoning ability of accountants.

The research also reflects that there is still a lot of space to improve the moral reasoning ability of accounting students, and the accounting moral education is still not perfect in China [28]. It is necessary for us to explore the beneficial ways to strengthen the moral education of accounting and improve the students' moral reasoning ability [29]. The research of this paper gives a lot of inspiration. To deepen the reform of accounting education, we should start from setting up moral education courses. The results of the questionnaire show that few people have listened to more than two lectures or courses related to accounting ethics, which needs to be improved. It is suggested to develop accounting ethics courses, so that these future accounting talents can establish accounting ethics awareness and concept in school. In addition, to equip the curriculum with professional teaching materials, we can also introduce foreign classic teaching materials to learn more practical experience. What's more, improve the teaching methods of modern accounting. Modern accounting teaching methods are mainly about method, discussion method, experiment method and so on. In the process of accounting moral education, case teaching and other multi form methods are more used. From the above comparison results, it is found that accounting students show better moral reasoning ability in specific accounting situations, so this kind of multi teaching method, such as real case analysis and discussion, scenario simulation, can lead to learn how to make a decision in the accounting dilemma. Finally, participation in practice - "practice is the only criterion to test truth". The way for accounting students to learn how to deal with people directly is to experience. Theory often needs to be combined with practice, so that students can understand deeply. In the course of theory, colleges can provide accounting students with more time and opportunities to participate in practice, continue education in their posts, and improve their moral reasoning ability through personal experience. When they get into trouble, they have the moral reasoning ability of accounting analysis to make better decisions.

However, this study has several limitations that should be considered when interpreting the results, which may provide opportunities for further research at the same time. First, the number of samples collected is too small to be more convincing. The proportion of men and women in the samples is too large, the ratio of men and women is nearly 1:5. Although this is the characteristics of accounting major, the existence of contingency is not excluded. So, we can coordinate the ratio of men and women more, improve the effectiveness and integrity of the samples in the future. Second, due to the lack of quantitative research on the ability of moral reasoning in China, the research in this paper lacks of horizontal comparison, especially on the innovation and improvement of DIT scale. There are still deviations from the comparison abroad. Therefore, in order to make ADIT more persuasive in this field, a lot of experimental research is still needed. Third, there are many other contents to compare, such as the impact of the number of times that students participate in accounting professional ethics courses and lectures on DIT and ADIT, and the comparison of these two results, etc., to make a deeper analysis.

The sample of this paper is from the sophomore and junior accounting college students in Jiangsu Province. There is a significant difference between the effect of DIT and ADIT. In the next step,

ADIT can be used to test the accounting students of other universities to make a horizontal comparison of the results. I hope that the insights of this paper can inspire other research in the future.

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