



## Research Article

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# An Empirical Analysis of the Effectiveness of Hands-on Inquiry-Based Teaching on the Moral Development of College Students

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## Abstract

*This study integrates the hands-on inquiry-based teaching method with the Ideological and Political Education course to design a foundational public course for Chinese higher education institutions, aimed at cultivating students' moral qualities. The participants were 220 first-year nursing students from a Chinese university. Of these, 110 students were placed in the experimental group, receiving instruction designed using the hands-on inquiry-based teaching method, while the remaining 110 students were in the control group, receiving traditional instruction. Both groups underwent pre- and post-tests to evaluate their learning outcomes in terms of moral qualities. Data were analysed using independent samples t-test, paired samples t-test, one-way ANCOVA, and Johnson-Neyman analysis. The results showed that the experimental group, which received the hands-on inquiry-based instruction, performed better than the control group in areas such as core socialist values, moral identity, and moral judgement abilities. This study provides empirical evidence and practical insights for higher education institutions exploring how to achieve educational outcomes through hands-on inquiry-based teaching methods.*

**Keywords:** Hands-on Inquiry-Based Teaching; Moral Development; College Students

## 1. Introduction

As education reforms deepen and modern educational technology develops, traditional teaching methods face many challenges (Shah & Ahmad, 2020). Traditional teaching mainly uses lectures, which cannot meet the needs of modern education (Wu & Lin, 2023). To improve teaching quality and adapt to modern educational demands, it is necessary to find more effective teaching methods, continuously optimise teaching outcomes, and enhance education quality (Spernes & Afdal, 2023).

In this context, Hands-on Inquiry-based Learning has emerged as an innovative teaching method and has gained widespread attention (Onyema et al., 2019). This method emphasises the active role of students, encouraging them to explore independently and learn the methods and steps

to understand and solve problems (Strat et al., 2023). It promotes students' active construction and internalisation of knowledge. The application of inquiry-based teaching meets the demand for skilled individuals, fostering talent with innovative thinking and practical abilities, thereby contributing to societal development (Hu et al., 2024). Hands-on inquiry-based learning has been widely recognised and actively promoted in other academic fields (Odun-Başkıran & Korkmaz, 2020).

The Ideological and Political Theory course is a core curriculum mandated by the Central Publicity Department and the Ministry of Education in China, and is a compulsory public course in Chinese universities (Zeng & Li, 2023). It aims to develop students' moral qualities and legal awareness. However, traditional teaching methods do not emphasise critical thinking in the classroom, leaving students passive and affecting the achievement of teaching goals (Jiang, 2020). The concept of subjectivity in Ideological and Political Theory can address issues of monotonous teaching methods and lack of student engagement (Wen, 2022). Inquiry-based teaching, as a modern method, positively impacts the teaching of Ideological and Political Theory by enhancing students' interest and ability to explore independently (Wen, 2022). University students are at a stage of rapid logical thinking development, enjoying problem exploration and rational inquiry. To motivate students, centre the learning on them, and improve their research and exploration skills, new teaching methods are needed (Chen, 2021). Current literature shows limited research on the design and implementation of specific courses impacting student learning outcomes (An & Gao, 2022). This study focuses on university students, designing an Ideological and Political Theory course based on inquiry-based teaching. Using a quasi-experimental design, it empirically examines changes in student learning outcomes compared to traditional methods. Since socialist core values are considered a "virtue" and separately highlighted in textbooks, this study treats "socialist core values" as an independent variable. The findings confirm the positive significance and practical value of applying inquiry-based teaching in Ideological and Political Theory courses. The cultivation of moral character, as a key goal of the curriculum, reflects a combination of individual virtues and social behaviors (Kyriakou et al., 2023). Through a review of the literature, this study selects moral identity and moral judgment ability as two indicators to measure the moral character of university students.

## 2. Literature Review

### 2.1 Hands-on Inquiry-based Learning

In the early 1990s, Dewey proposed inquiry-based teaching, emphasising both knowledge acquisition and understanding research processes (Costes-Onishi & Kwek, 2023). This method involves students exploring problems independently through activities like reading, observing, discussing, and listening (Tawfik et al., 2020). It boosts curiosity and motivation (Suarez et al., 2018) and has shown significant educational impact (Orosz et al., 2023).

Aditya et al. (2022) found that using podcasts in inquiry-based learning improved nursing students' confidence and knowledge acquisition. Nzomo et al. (2023) showed it positively affected chemistry students' self-efficacy. Manishimwe et al. (2022) reported improvements in biology students' performance, motivation, and interest in learning, benefiting teachers' skills as well.

Specific methods have developed for various subjects. In physical education, Wu (2023) suggested activities to help students solve problems. Li (2024) recommended steps for a university sports health course, including problem scenarios and project-based teaching.

In science courses, Manishimwe et al. (2022) and Zhang et al. (2024) applied this method in biology and chemistry, respectively, with steps like posing questions, making hypotheses, gathering information, designing experiments, analysing data, and drawing conclusions. Key elements are "questions" and "verification" (Sen et al., 2019; Ong et al., 2020).

The 5E instructional model includes five stages: Engage, Explore, Explain, Elaborate, and Evaluate (Tawfik et al., 2020), used in higher education Ideological and Political Theory courses. The design of the Ideological and Moral Cultivation and Legal Basis course addresses the common

ideological challenges and confusions among young students. By employing an inquiry-based teaching method, the course's relevance and effectiveness can be enhanced. Through content that is structured with a clear problem orientation and diverse contextual backgrounds, the course provides students with ample opportunities for exploration (Sen et al., 2019).

Creating scenarios involves using questions to embed course content in meaningful activities and examples, stimulating interest (Akins et al., 2019). Teachers should know the materials and use storytelling or videos to provide problem backgrounds, motivating students (Nzomo et al., 2023). Inquiry involves students solving problems and building new understanding (Turksever, 2021). Students engage independently and collaboratively, with teachers providing guidance (Varoglu et al., 2020). Explanation has students present findings, with teachers supplementing solutions using multimedia (Yildirim & Demirkol, 2018). Elaboration applies knowledge to new situations, encouraging further inquiry (Tawfik et al., 2020). Evaluation includes classroom assessments, student feedback, inquiry enthusiasm, teacher evaluations, self-assessments, and peer assessments (Hu et al., 2024).

## 2.2 Socialist Core Values

The concept of socialist core values encompasses key principles such as freedom, democracy, happiness, and benevolence (Carnevali & Pedersen Ystehede, 2023). Liu (2024) further categorises these values into people-oriented, fairness and justice, common prosperity, democratic rule of law, advanced civilisation, and social harmony. According to the report from the 18th National Congress of the Communist Party of China, these values operate on three levels: national, social, and individual (Hong, 2022). Nationally, they include prosperity, democracy, civilisation, and harmony; socially, freedom, equality, justice, and the rule of law; and individually, patriotism, dedication, integrity, and friendliness (Xin, 2023). In China, these values form the core of the socialist value system (Chen, 2021), and this study assesses how college students' values evolve under inquiry-based teaching using these principles.

Scholars agree on the educational effectiveness of core socialist values, noting their role in enhancing moral education outcomes and fostering societal unity (Zhao et al., 2020). They unify ideology, promote common beliefs, and instil basic moral norms across society and the Party (Zhao, 2016; Song, 2021). Education in these values within universities is supported by big data to quantify ideological trends and strengthen educational efforts (Ren & Yang, 2023). Integrating these values into campus culture involves improving educational frameworks, innovating dissemination methods, and enhancing ideological and political education (Miller et al., 2019).

Research also suggests that promoting these values among college students leverages the comprehensive educational advantages of universities, with family education playing a complementary role (Gao, 2023). It advocates integrating these values into entrepreneurship education and practical activities to stimulate innovation and talent development (Jing, 2020). Overall, cultivating core socialist values requires collaborative efforts across various sectors to establish effective educational strategies (Chen, 2021). This study aims to compare different educational approaches to identify the most effective pathways for teaching core socialist values.

## 2.3 Moral identity

Moral identity theory, introduced by Blasi (1984) and rooted in psychology and social ethics (Kingsford et al., 2018), integrates an individual's moral and self-systems, aligning moral concepts with self-identity. It acts as a self-regulatory mechanism through the implicit evaluation of moral traits (Reed & Aquino, 2003).

Early research focused on moral cognition and behaviour (Wang & Hackett, 2020), revealing contemporary college students' limited understanding of traditional morals (Lefebvre & Krettenauer, 2019) and a gap between moral knowledge and action, leading to confusion in moral choices (Aquino

& Kay, 2018). Kaur (2020) noted unstable moral behaviour and self-centred moral views among college students, particularly regarding friends' untrustworthy actions.

Moral identity links moral understanding and behaviour (Yue et al., 2023) and can be enhanced through social activities and emotional training, prompting corrective behaviour (Ke & Li, 2024). Systematic moral education improves moral identity (Rullo et al., 2022), though multiple approaches, including relevant courses and activities, are required (Szumski et al., 2020).

Strengthening traditional moral values education among college students is essential, with political education courses fostering cultural awareness and confidence (Wu & Lin, 2023). Integrating moral concepts into daily life and providing moral practice opportunities unify moral cognition, emotion, will, and behaviour (Gotowiec & Mastrigt, 2019; Locquiao & DeSutter, 2024). Lefebvre and Krettenauer (2019) assert that a strong moral identity leads to more prosocial and ethical behaviours and fewer antisocial behaviours.

Moral identity influences college students' moral behaviours, with moral education enhancing moral identity. This study uses inquiry-based teaching in ethics and rule of law education to improve moral identity, measured using the Chinese version of Aquino and Reed's (2002) Moral Identity Questionnaire, revised by Yang and Wan (2008), to compare experimental and control groups.

#### 2.4 Moral Judgment Ability

The concept of moral judgment ability, introduced by Kohlberg (1964), reflects an individual's moral level through their judgments. Li et al. (2017) explain that moral judgment addresses questions like "What is moral?", "Why be moral?", and "How to be moral?", reflecting the moral value of a behaviour or the responsibility of a judgment subject. Moral judgment ability, crucial in moral capability, involves analysing moral issues and distinguishing right from wrong to guide moral practice (Carlson et al., 2022). This study defines college students' moral judgment ability as their capacity to analyse moral issues and make sound evaluations based on their moral knowledge and concepts.

Gao et al. (2016) noted that the cultivation of moral judgment ability in college students is insufficient. Higher education emphasises moral development but lacks a systematic discussion of moral judgment ability, a key component of moral capability (Zheng & Stewart, 2024). Disciplines such as ethics, psychology, sociology, and philosophy mention moral judgment ability in the context of individual morality and modern moral education (Kyriakou et al., 2023). Moral education courses often focus on normative aspects, telling students what to do or not to do, but neglect the development of students' subjectivity and creativity, hindering the cultivation of moral judgment ability (Kyriakou et al., 2023). This study aims to improve college students' moral judgment ability through inquiry-based teaching.

Psychologists have sought effective methods to evaluate moral judgment (Morley & Sankary, 2024), including Piaget's (1966) paired story-telling technique, Kohlberg's (1984) moral dilemma stories, and Ling's (2005) moral judgment test. Lind's (2005) test measures both moral cognition and emotion, demonstrating good adaptability and ease of use (Yu et al., 2023; Awad et al., 2022). This study uses Lind's (2005) test to measure the moral judgment ability of nursing students, examining differences in teaching effectiveness after empirical teaching.

### 3. Method

#### 3.1 Course Design

This study uses a quasi-experimental design to examine the impact of inquiry-based teaching compared to traditional teaching methods on the dependent variables. Pre-tests and post-tests were conducted for both the experimental group, which received inquiry-based instruction in an ideological and political education course, and the control group, which received traditional instruction in the same course. The results of the pre-tests and post-tests were compared to

determine the extent of the effect of the inquiry-based teaching method on the dependent variables. The research design is presented in Figure 3.1.

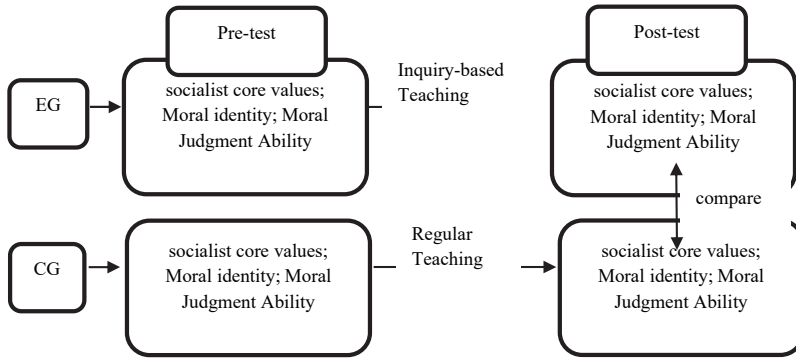


Figure 3.1:

### 3.2 Participants

This study focuses on 220 first-year nursing undergraduates at the International Nursing School of a university in China. The sample was purposively selected as the researcher teaches the experimental course at the university. Two classes from the same grade and major were chosen, each comprising students aged 18 to 20, and randomly assigned to the experimental group and the control group, with 110 students in each group. None of the students had previously taken courses related to ideological and political education, so their values, morals, and behavioural skills were limited. The experimental group received instruction through an inquiry-based learning model, while the control group was taught using traditional methods. By comparing the learning outcomes and performance of the two groups, the study aims to assess the effectiveness of the different teaching models.

### 3.3 Expert Review on the Effectiveness of the Course Design

To assess the effectiveness of the inquiry-based teaching approach, five experts in ideological and political education, academic research, and teaching evaluated the course design. They reviewed the design approach, teaching objectives, and classroom activities. All experts agreed that the course design is effective for teaching "Ideological and Moral Cultivation and Legal Basis" (details in Table 3.1).

Table 3.1: Background of Experts Involved in Validity Assessment of Course Design Cases

Expert	Title	Institution	Experience (years)
A1	Associate Professor	Vocational and Technical College in Hainan	14 years
A2	Professor	Vocational University in Hainan	39 years
A3	Professor	Vocational University in Hainan	37 years
A4	Professor	Vocational University in Hainan	37 years
A5	Associate Professor	College in Hainan	18 years

Note. Data sourced from the organization of this study.

## 4. Course Design

### 4.1 Course Content

This study uses the textbook designated by the Ministry of Education. The course content includes an introduction and six chapters, totaling 48 class hours as per the Chinese education regulations. The textbook is divided into three main sections: ideological education, moral education, and legal education. To measure the effects of inquiry-based teaching on college students' core socialist values, moral identity, and moral judgment ability, the second section on moral education is selected for empirical teaching. This section includes chapters four and five, with four class hours for chapter four on core socialist values and ten class hours for chapter five on moral education.

### 4.2 Course Planning

This study designs a teaching framework for the course "Ideological and Political Education," consisting of five stages: setting the scene, inquiry, explanation, elaboration, and evaluation.

#### **Stage One: Setting the Scene**

In this initial phase, activities or problem scenarios related to students' daily lives are designed to introduce the theme of the course, engaging students' interest. For example, a video on "The Disorderly Parking of Shared Bikes and New Problems in Urban Management" is shown to highlight the importance of public order. This is followed by a discussion prompted by questions such as: A) If someone falls, would you help them? B) If the person had previously deceived you, would you still help them? C) If a family member falls, would you hope someone else would help them?

#### **Stage Two: Inquiry**

This is the central part of the inquiry-based teaching method for the experimental group. Students are divided into groups to propose questions based on the topic "Engaging in Virtuous Moral Practices – Observing Social Morality," using a theoretical framework (e.g., What is it? How is it? Why? How to do it?). Each group selects questions for exploration, while the teacher addresses questions with limited scope for expansion. Students gather information, classify and discuss findings, and form conclusions, documented in learning sheets to meet teaching objectives.

#### **Stage Three: Explanation**

In this phase, students abstract and theorize their experiences, presenting their group's investigation process and conclusions. The teacher guides them in forming scientific concepts, correcting misconceptions through verbal explanations, video demonstrations, multimedia presentations, and discussion prompts. Using the topic "Engaging in Virtuous Moral Practices—Adhering to Social Ethics" as an example, let's consider the third group's question: What is the current state of social ethics in society? Following Yildirim and Demirkol's (2018) theory, a representative from the third group would first present their group's research process and findings. The teacher would then use multimedia tools to show a video of the "Chengdu Female Driver Assault Incident" and present materials such as a "List of the Most Disliked Uncivil Behaviors on Campus" and images related to the "Promotion of Shared Bicycles." Through analysis and discussion, the current state of social ethics in China would be examined. The teacher would also provide additional content to enhance students' awareness of social ethics and improve their moral character.

#### **Stage Four: Elaboration**

This phase aims to help students apply their learning and connect theory with practice. Students engage in further thematic investigations to enhance their moral and legal understanding continuously. The topic "Engaging in Virtuous Moral Practices—Adhering to Social Ethics" builds on students' existing knowledge of social ethics, focusing on the moral requirements of online life. Following Tawfik et al. (2020), the study is structured around a thematic inquiry, beginning with a case study to establish context. Key questions are posed, such as the purpose of internet use, whether online life is public, and the moral expectations of online behavior. Students explore these questions

through reflection and group discussion, guided by the teacher. The process concludes with the teacher summarizing how students can uphold online moral standards, thereby enhancing their overall moral character.

#### **Stage Five: Evaluation**

This phase involves assessing students' learning, including pre-class preparation, classroom participation, and post-class testing. For example, in a lesson on "Engaging in Moral Practices and Adhering to Social and Professional Ethics," videos on public life and shared bicycle management challenges are uploaded via the "Treenity" student APP platform before class. The teacher monitors preparation time and click rates as minor evaluation criteria. Participation during the teaching process is assessed through detailed records of group discussions, data collection, research ideas, and report writing. Learning sheets include teacher evaluations, self-assessments, and peer assessments. Chapter test questions are released via the ChaoXing and "Treenity" platforms, with system-generated scores used as evaluation standards.

### **5. Research Instruments**

The study used questionnaires, textbooks, lesson plans, and test questions to collect data, primarily through questionnaire surveys. A pilot survey was conducted to ensure rigor, and the pilot questionnaires underwent item analysis, validity, and reliability tests (Wu, 2003). SPSS software was used to analyse 352 valid pilot questionnaires, and items not meeting standards were removed.

#### *5.1 Core Socialist Values Scale*

The Socialist Core Values Identification Scale by Wang Dan et al. (2019) was used, employing a Likert scale from "strongly agree" to "strongly disagree." The scale, designed for university undergraduates, is divided into three levels: national, societal, and individual. Good reliability and validity were shown in the scale with an overall Cronbach's Alpha of .973.

#### *5.2 Moral Identity Scale*

The Moral Self-Identity Questionnaire for Adolescents by Yang and Wan (2008) was used, consisting of 16 items. Participants rated their agreement with moral traits on a scale from 1 to 5. The scale showed good reliability and stability, with a total Cronbach's Alpha of .911.

#### *5.3 Moral Judgment Ability Scale*

The Moral Judgment Test developed by Ling (1998) was used, involving two dilemma stories (Factory disputes and doctors' dilemmas) and 26 items. During the pilot phase, item analysis led to the removal of invalid items, leaving 24 items. The scale, using a Likert 9-point scoring system, showed good reliability and validity with a Cronbach's Alpha of .768.

### **6. Experimental Analysis and Results**

#### *6.1 Independent Sample t-Test*

A difference test between the experimental and control groups before the experiment showed no significant differences in core socialist values, moral identity, and moral judgment ability, indicating homogeneity between the groups (Chen & Wang, 2011). Please refer to Table 4.1.

**Table 4.1:** The Comparison between EG and CG in Independent Sample *t*-test (*N*=220)

Variables	Groups	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Socialist Core Values	CG	2.531	0.383	1.560	.120
	EG	2.609	0.357		
Moral identity	CG	2.594	0.577	0.229	.819
	EG	2.577	0.484		
moral judgment ability	CG	3.795	0.509	0.374	.709
	EG	3.770	0.450		

Note. *n*=220. EG= Experimental Group; CG= Control Group. *M* = Mean, *SD* = Standard Deviation.

### 6.2 Paired Sample *t*-Test

A paired sample *t*-test was conducted after the experimental intervention to assess whether significant differences existed between the pre- and post-tests for the experimental and control groups.

Post-intervention tests showed significant improvements in the control group’s core socialist values, moral identity, and moral judgment ability. Similarly, the experimental group showed substantial improvement after the inquiry-based course intervention (Chen and Wang’s 2011). Please refer to Table 4.2, 4.3.

**Table 4.2:** Paired Sample *t*-Test for the Control Group’s Pre- and Post-Test (*N*=110)

Variables	Groups	<i>M</i>	<i>SD</i>	<i>t</i>
Socialist Core Values	Pre-test	2.531	0.383	46.634***
	Post-test	3.780	0.373	
Moral identity	Pre-test	2.594	0.577	29.578***
	Post-test	3.881	0.498	
moral judgment ability	Pre-test	3.795	0.509	29.158***
	Post-test	5.556	0.509	

Note. *n*=110. *M* = Mean, *SD* = Standard Deviation. \*\*\**p* < .001

**Table 4.3:** Paired Sample *t*-Test for the Experimental Group’s Pre- and Post-Test (*N*=110)

Variables	Groups	<i>M</i>	<i>SD</i>	<i>t</i>
Socialist Core Values	Pre-test	2.609	0.357	44.533***
	Post-test	4.287	0.404	
Moral Identity	Pre-test	2.577	0.484	29.599***
	Post-test	4.376	0.404	
Moral Judgment Ability	Pre-test	3.770	0.450	33.949***
	Post-test	6.546	0.668	

Note. *n*=110. *M* = Mean, *SD* = Standard Deviation. \*\*\**p* < .001

## 7. One-Way ANCOVA

One-way ANCOVA was used to test for statistically significant differences between the experimental and control groups after controlling for pre-test scores. In statistics, to reduce the influence of confounding variables, ANCOVA is used to handle control variables (Qiu, 2013).

### 7.1 Homogeneity of Covariance Analysis

Ateş et al. (2020) pointed out that homogeneity testing is a prerequisite for ANCOVA analysis. When the two groups meet the homogeneity condition (*p*>.050), ANCOVA can be conducted. In this study,



the post-test scores of the two groups were the dependent variables, and the pre-test scores were the covariates. The homogeneity test showed that core socialist values ( $F=30.110, p<.05$ ), moral identity ( $F=32.443, p<.05$ ), and moral judgment ability ( $F=6.814, p<.05$ ) met the condition, as shown in Table 4.4. This indicates a statistically significant difference between the experimental and control groups after controlling for the pre-test scores (Chen & Wang, 2011). Researchers need to find an alternative to ANCOVA; the Johnson-Neyman procedure (J-N) is proposed as an alternative method (Weng & Hwang, 2023).

7.2 Johnson-Neyman Analysis

The Johnson-Neyman analysis evaluated how effective the experimental and control groups were in learning outcomes. Table 4.4 and Figures 4.1, 4.2, and 4.3 show data on regression coefficients and related information. The critical value indicates the significant region: when pre-test scores are below this value, there are noteworthy differences in post-test scores between the experimental and control groups; above this value, differences are not significant (Weng & Hwang, 2023).

Table 4.4 reveals that for core socialist values, the critical value was 3.195, for moral identity it was 3.177, and for moral judgment ability it was 5.042. Figures 4.1, 4.2, and 4.3 illustrate this with reference lines at these critical values. Below these lines, significant differences favour the experimental group in post-test scores, indicating better outcomes when students' pre-test scores are lower than these critical values.

In summary, according to the Johnson-Neyman analysis, the experimental group performed better than the control group. This suggests that the inquiry-based course design used in the experimental group led to higher levels of moral and legal understanding compared to traditional teaching methods.

Table 4.4: Johnson-Neyman Analysis for Each Sub-Test Between Experimental and Control Groups

variables	Source	Coef.	SE	t-Value	Sig	Sig. point	Sig region (%)
Socialist Core Values	Groups Pre-test	.536	.094	5.696	.000 ***	3.195	2.273-97.727
Moral identity	Groups Pre-test	.578	.102	5.696	.000 ***	3.177	10.455-89.545
Moral Judgment Ability	Groups Pre-test	.435	.167	2.610	.010 *	5.042	1.364-98.636

Note. \*\*\* $p <.001$ , \* $p <.05$

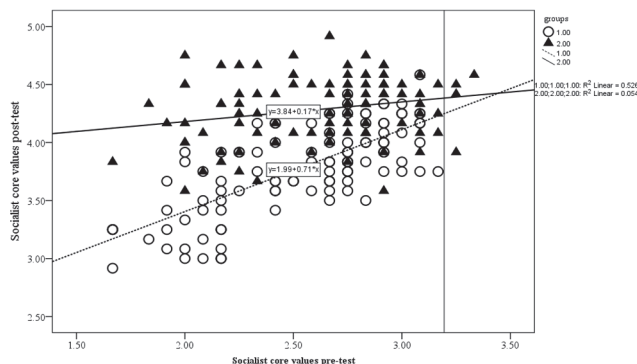


Figure 4.1: Johnson-Neyman Analysis for Core Socialist Values Test Between Experimental and Control Groups

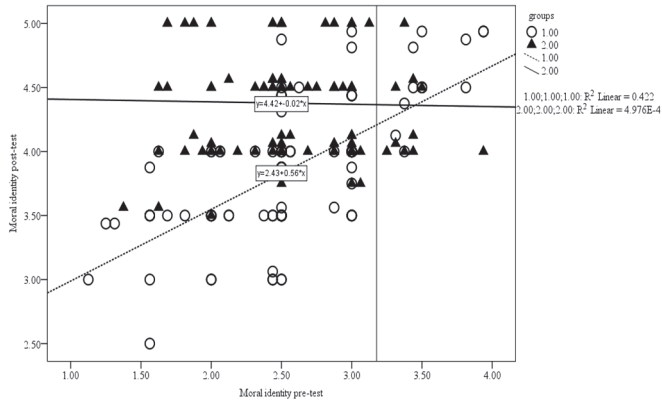


Figure 4.2: Johnson-Neyman Analysis for Moral Identity Test Between Experimental and Control Groups

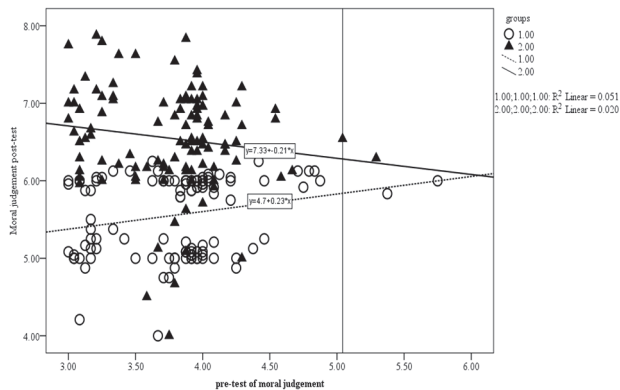


Figure 4.3: Johnson-Neyman Analysis for Moral Judgment Ability Test Between Experimental and Control Groups

## 8. Discussion

The inquiry-based teaching model significantly improved the core socialist values of students in the experimental group. Post-test scores in the experimental group were significantly higher than pre-test scores, with paired sample t-tests showing significant differences. This conclusion aligns with Zhang et al. (2022), who argue that core values education must make students the subjects of both theoretical learning and practical application. This indicates that under the inquiry-based teaching model, students can enhance their learning of core socialist values through autonomous and cooperative inquiry.

The improvement in learning outcomes in the experimental group might be related to time management by the teacher, requiring students to complete pre-class preparations, group discussions, and autonomous and cooperative inquiries within set times. Silveiraiah et al. (2022) noted that time management strategies require learners to manage their time effectively and complete learning tasks on time while choosing a suitable physical space to achieve learning goals. Moreover, the improvement might also be related to the design of collaborative group tasks, where seeking help

and peer learning positively influence learning outcomes, as suggested by Qureshi et al (2023). The study also found that pre-test scores significantly influenced post-test scores, indicating that students with a certain level of core socialist values knowledge and strong autonomous learning abilities showed more evident experimental effects. This suggests that improving the learning of core socialist values is a gradual process that can naturally develop through autonomous inquiry and specific training with teacher intervention (McCombs, 2001).

The paired sample t-tests showed that post-test scores for moral identity in the experimental group were significantly higher than pre-test scores. This might be due to integrating the inquiry-based teaching method into the course design, enhancing students' motivation and interest. This finding aligns with Szumski et al. (2020), who argued that improving moral identity is a complex process requiring multiple approaches, including setting relevant courses and activities in schools to help individuals establish correct moral concepts.

Moreover, the paired sample t-tests revealed that students who participated in the inquiry-based teaching course showed a greater improvement in moral judgment ability compared to those who did not. The post-test results indicated that the experimental group's moral judgment ability significantly improved after the intervention. This improvement might be due to the use of various cases during the inquiry process, where students apply learned theories to specific cases, testing and reinforcing their understanding. This approach aligns with Li et al. (2017), who suggested that using cases and dilemmas to encourage students to think from multiple perspectives and learn from past failures can improve moral judgment. Strengthening moral judgment abilities through moral education courses is crucial.

The effectiveness of the experimental and control groups in learning outcomes was evaluated using the Johnson-Neyman analysis. The results showed that when the pre-test scores for socialist core values, moral identity, and moral judgment were below the critical point, the experimental group performed significantly better than the control group. Thus, compared to traditional teaching methods, the inquiry-based design and implementation of the Ideological and Political Education course provided the experimental group students with a higher level of moral development.

## 9. Conclusion

The study indicates that applying inquiry-based teaching theory to the Ideological and Political Education course over a six-week period is effective for designing a foundational course for Chinese nursing students. This course design enhances the moral development of nursing undergraduates in China. Additionally, the Johnson-Neyman analysis revealed that when pre-test scores were below the critical threshold, the learning outcomes improved significantly. Therefore, in future teaching practices, we should focus on students at different levels, leveraging the distinct problem-focused nature of the Ideological and Political Education course. Using inquiry-based methods can enhance the course's relevance and effectiveness, helping all students achieve their learning goals. The inquiry-based teaching method can be applied not only to general education courses for Chinese university students but also to other specialized courses for nursing students in China (Orosz et al., 2023). After undergoing inquiry-based learning, students can internalize and transfer these skills to other courses (Manishimwe et al., 2022).

## 10. Limitations and Recommendations

This study has provided valuable insights and findings but also exhibits certain limitations. For instance, it focused solely on the design and study of moral and legal education courses, with a limited duration of a 6-week teaching experiment. This short timeframe may not fully capture the practical application of inquiry-based teaching in curriculum design and implementation.

These limitations could be addressed by employing a broader range of research methods and expanding the study to include student groups from different levels and backgrounds. Future

research could further explore the design of courses from the perspective of inquiry-based teaching, aiming to effectively apply teaching methods tailored to university ideological and political education courses.

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