

Innovative Approaches of Moral Education in Colleges and Universities: A Case of Sichuan Institute of Industrial

Dingyong Xiong¹, Sujin Butdisuwan² and Piyapun Santaveesuk³

¹Ph.D. Student in Education Program, Faculty of Education, Shinawatra University, Thailand

^{2,3}Faculty of Education, Shinawatra University, Thailand

E-mail: xiongdinyong@163.com, ORCID ID: <https://orcid.org/0009-0005-6969-2185>

E-mail: sujin.b@siu.ac.th, ORCID ID: <https://orcid.org/0009-0006-3551-1865>

E-mail: piyapun.s@siu.ac.th, ORCID ID: <https://orcid.org/0000-0002-7083-4815>

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Abstract

Background and Aims: With profound changes in the Chinese economy, The social structure should be observed. Interest pattern Ideological concept and the dangers hidden in the ideology and morality of contemporary college students. This study examined the state of moral education in colleges and universities.

Research Methodology: The impact of moral education on the quality of character in college students. Problems of moral education today and the cause of the problem Then I analyzed the innovation path of moral education in colleges and universities.

Results: According to the descriptive statistics of background variables, it was found that the highest percentage of gender was "female" at 65.9%, while the second grade had the highest percentage of 100. 40.0 each. The major field of study "Science and Engineering" has the highest proportion (66.9 %) in terms of political profile. "Members of the Communist Youth League" had the highest proportion, 75.0%. In terms of academic performance, "moderate" had the highest proportion, 57.6%. For the "urban" student source category, the proportion was 54.0%.

Conclusion: When combined with the above analysis Students should emphasize the importance of moral education in colleges and universities. Students should value the role of self-study and emphasize innovative strategies such as self-monitoring, self-discipline, and self-control.

Keywords: Moral education; Moral Education in Colleges and Universities; College students; Innovation approaches



Introduction

Chinese civilization has a long history and has nurtured the valuable spiritual character of the Chinese nation and cultivated the noble values of the Chinese people. In the course of the revolution, construction, and reform, the Communist Party of China (Granet, 2013) (CPC), under the leadership of the people, has adhered to the Marxist ideal of a better society for mankind, inherited and carried forward traditional Chinese virtues, and created and formed a socialist moral system that has led the development and progress of Chinese society (Stockman, 2013). Adherence to and development of socialism with Chinese characteristics require (Zhao, 2012), the comprehensive development of material and spiritual civilization and the comprehensive improvement of people's material and spiritual living standards. (Pender, 2001) As socialism with Chinese characteristics enters a new era, strengthening the construction of civic morality and raising the moral level of the whole society is a strategic task for building a moderately prosperous society and a socialist modernized power, an urgent need to adapt to the change of the main contradiction in society and satisfy the people's aspirations for a better life, and an indispensable requirement for promoting the overall progress of society and the comprehensive development of human beings (Peters, 2019). In 2019, the Central Committee of the Communist Party of China (CCP) (Brown, 2017), the State Council issued the Outline for the Implementation of Civic Moral Construction in the New Era (hereinafter referred to as the Outline), which was promulgated against the backdrop of great changes in world, national and Party conditions, especially the broader context that socialism with Chinese characteristics has entered a new era. The Outline combs through seven aspects of moral construction. including adherence to the Marxist concept of morality, adherence to the socialist concept of morality, and adherence to socialist core values as a guide, and putting forward higher requirements for the construction of civic morality in the new era.

Colleges and universities are important bases for creating advanced culture, and at the same time, they are the front line of ideological struggle. Moral construction in colleges and universities has always been a matter of concern for theoretical circles and senior leaders. At present, China's higher education is gradually shifting from elite education to mass education, and the role of high-quality laborers in all aspects of society is becoming more and more significant, which makes the task of moral construction in colleges and universities even more burdensome (Hurtado et al 2012). After the exploration and practice since the reform and opening up, the moral construction structure of China's colleges and universities has been greatly adjusted and played a significant role, but there are still many problems, and the moral construction system of colleges and universities is in urgent need of further improvement Research Questions To achieve the objectives above, the research questions of this study include the following: what are the emerging innovative paradigms in moral education in higher education? how have innovative paradigms been applied at the Sichuan Institute of Industrial Technology and similar institutions? (Peffer, 2014)

Objectives

1. To improve moral education. Students are developing people; this development is the process of socialization of their personality.
2. To propose the concept of double subjects, Teachers and students are the main body of moral education

Moral Education in Colleges and Universities





The development of morally upright citizens has made moral education in colleges and universities even more important. Higher education institutions need to inculcate strong moral values and ethical principles in their students because they will play a critical role in molding the leaders of society in the future. This is crucial for everyone's personal growth as well as for the welfare of the community at large. Colleges and universities can aid in the development of a more just and equitable society by incorporating moral education into the curriculum (Nash, 1997).

The Role of Higher Education Institutions

Institutions of higher learning are in a unique position to affect their students' moral growth. These educational establishments offer an environment that fosters critical thinking, introspection, and the investigation of various viewpoints—all crucial elements of a moral education. Colleges and universities can foster an atmosphere that promotes moral reasoning abilities development and ethical discussion, according to Rest et al. (1999). This can be accomplished by taking courses in social sciences, philosophy, and ethics in addition to participating in extracurricular activities and community service projects that encourage moral conduct and social responsibility.

Methods of Implementing Moral Education

In higher education, moral education can be implemented in several efficient ways. Including ethical discussions in already-existing coursework from a variety of disciplines is one strategy. Students can see how moral principles apply to their chosen fields of study as a result. Offering specialized courses on moral philosophy and ethics is another way to help students gain a deeper comprehension of ethical theories and how they are applied (Swaner, 2005). Furthermore, experiential learning opportunities—like study abroad programs, internships, and service-learning projects—allow colleges and universities to further advance moral education by assisting students in applying ethical ideas to real-world situations.

Challenges and Considerations

Notwithstanding the significance of moral education, colleges and universities encounter various obstacles to its efficient implementation. Finding common ground for ethical discussions can be challenging due to students' diverse backgrounds and belief systems. Potential faculty resistance, who might see moral education as outside the purview of their academic duties, presents another difficulty. To tackle these obstacles, educational establishments should cultivate an atmosphere of tolerance and candid communication, motivating instructors and students alike to discuss moral and ethical matters civilly and productively (Colby & Sullivan, 2009).

China has a long tradition of moral education, (Fengyan, 2004) which the pre-Qin Confucian scholars. pre-Qin Confucianism has formed a large number of moral cultivation methods. (Li, & Cui, 2022) Marxist Ideology of Moral Education. (Peffer, 2014) The Marxist concept of social morality is an important ideological foundation for the implementation of the rule of the country by virtue in China, and the ideological. (Maosen,1990) The ancient Greek philosopher Aristotle defined the perfect personality as a perfect way of life, (Lawrence, 1993) which includes not only relationships with others but also one's inner qualities, and that virtues oriented toward others and virtues oriented toward oneself are closely related and mutually exclusive Moral Education Model in Colleges and Universities Moral (McClellan,1992) the education model is the structure of moral education activities and its supporting implementation strategies that have been finalized through long-term moral education practice under the guidance of certain moral education ideology and theory. (Maosen, et al



2004). This definition includes the form of moral education activities which is composed of the unity and combination of theoretical guidance, structure and procedure of activities, implementation principles, and operational principles. Overview of Research on Moral Education Theory. (Cheng, 2019) The concept of moral education is an issue that has long been controversial in the academic world. (Maosen, 2004) The concept of morality existed in China during the ancient period and at the beginning of the twentieth century in the modern era. The preamble of the revised Basic Law of Education sets out new basic principles of education that respect "the public spirit" (Chen, 2014) The richness of humanity and creativity", "the inheritance of tradition" and "the development of the future"

In conclusion, moral education in colleges and universities is crucial for the growth of morally upright people and the advancement of society. Higher education institutions can effectively incorporate moral education into their curricula and extracurricular activities by utilizing their unique position, which will help students develop their moral reasoning and ethical behavior. Notwithstanding the difficulties, they can be solved by adopting inclusive policies and a dedication to candid communication. The emphasis on moral education will remain a pillar of higher education institutions' mission to develop knowledgeable, moral, and socially conscious citizens as they continue to change.

Conceptual Framework

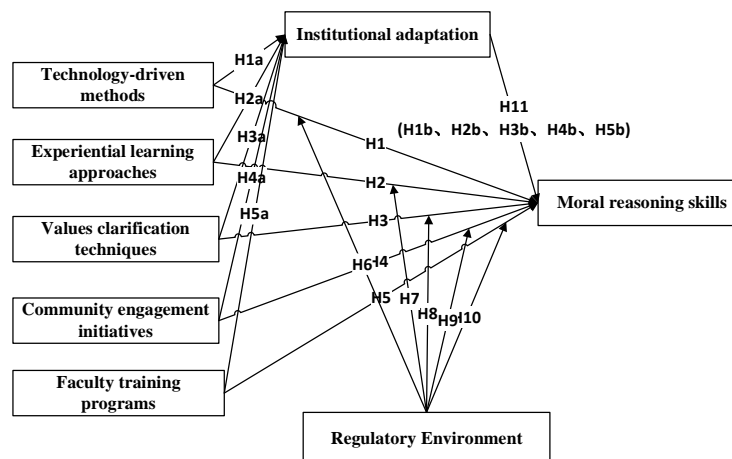


Figure 1 Conceptual framework

Independent Variables

Technology Driven Methods Experiential learning Values clarification etc. Community engagement initiatives. Faculty training programs

Dependent Variable

Moral reasoning skills refer to the ability of an individual to think and judge systematically when confronted with moral and ethical issues.

Institutional adaptation is the mediating variable. Moderating variables

Research Hypotheses

H1: There is a significant effect of Technology-driven methods on Moral reasoning skills;

H1a: There is a significant effect of Technology-driven methods on institutional adaptation;

H1b: There is a mediating effect of institutional adaptation between Technology-driven methods and Moral reasoning skills;

Methodology

Research Design

The first part mainly collects the basic information of the respondents, including six aspects: gender, grade, major, political affiliation, academic achievement, and type of student source.

The second part of the study focuses on the collection of respondents' moral education status of moral cognition, moral emotion, moral will, moral behavior, and the status of moral education for college students, the design of which is specifically shown in the appendix.

Population and Sample Size

Sichuan Institute of Industrial Technology (SCIIT) is an engineering-based, multidisciplinary, and coordinated development of full-time applied undergraduate colleges and universities. The university has 30,518 students with 86.70% of undergraduates in the total number of students enrolled. As of December 2023, the school has 1147 full-time teachers, of which 30.08% are senior teachers, 69.31% are teachers with doctoral and master's degrees, 30.08% are dual-teacher and dual-competent teachers, and there are 504 external teachers. The population and sample size of this study are mainly based on the overall sample of all students enrolled in the Sichuan Institute of Industrial Science and Technology. To be able to satisfy the demographic characteristic factors such as different genders, different education levels, and different majors, 400 enrolled college students were taken as the survey sample; a random sampling method was adopted to select 20 enrolled college students in 20 classes as the survey respondents.

Results

In this study, firstly, we used SPSS statistical analysis software to analyze the background variables of the respondents with descriptive statistics. According to the results of the descriptive statistics of the background variables, it can be seen that in terms of gender, "female" accounted for the highest proportion of 65.9%, followed by "male", accounting for 34.1%. In terms of grade, "sophomores" had the highest percentage of 40.0%, followed by "seniors" with 30.8%, and then "juniors" with 16.3%; "Freshmen" accounted for 13.0%. As for majors, "science and technology" accounted for the highest proportion of 66.9%, followed by "literature and history" with 27.0%, and "arts and sports" with 6.1%. In terms of political affiliation, "Communist Youth League members" accounted for the highest proportion of 75.0%, followed by "CPC members" with a proportion of 18.9%, and then "the masses" with a proportion of 6.1%. In terms of academic achievement, "medium" accounted for the highest proportion of 57.6%, followed by "good" with 16.9%, and "excellent" with 11.4%; The percentage of "pass" was 11.1%, while the percentage of "fail" was 3.0%. As for the type of student source, "urban" accounted for 54.0%, followed by "rural" with 46.0%.

Table 1 Descriptive statistics of background variables

Background variable		N	%
Gender	Male	135	34.1%
	Female	261	65.9%
Grade	Freshman	52	13.0%
	Sophomore	160	40.0%
	Junior	65	16.3%
	Senior	123	30.8%
	Major	Science and Engineering	265
	Literature and History	107	27.0%
	Arts and Sports	24	6.1%
Political Affiliation	CPC Member	75	18.9%
	Communist Youth League Member	297	75.0%
	the Masses	24	6.1%
Academic Achievement	Excellent	45	11.4%
	Good	67	16.9%
	Medium	228	57.6%
	Pass	44	11.1%
	Fail	12	3.0%
Type of Student Source	Urban	214	54.0%
	Rural	182	46.0%

Source: Organized by this study

Second, we used SPSS statistical analysis software to analyze Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), Educational Outcomes (EO), and Status of moral education for college students (SMECS) were analyzed by descriptive statistics. Based on the results of descriptive statistics for each variable, it can be seen that Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), Educational Outcomes (EO), and Status of moral education for college students (SMECS) do not differ significantly in their means and standard deviations.

Table 2 Descriptive statistics for each variable

	N	Mean	SE	Skewness		Kurtosis	
	Statistics	Statistics	Statistics	Statistics	Standard error	Statistics	Standard error
IN	396	11.629	3.723	0.095	0.123	0.187	0.245
PO	396	11.533	3.621	0.200	0.123	0.375	0.245
AD	396	11.323	3.552	0.194	0.123	0.453	0.245
FL	396	11.364	3.706	0.151	0.123	0.234	0.245
EF	396	11.553	3.562	0.120	0.123	0.481	0.245
OU	396	11.838	3.134	0.268	0.123	0.571	0.245
EO	396	11.848	3.132	0.269	0.123	0.581	0.245
SMECS	396	11.814	3.097	0.320	0.123	0.403	0.245

Source: Organized by this study

Correlation analysis

In this study, we used SPSS statistical analysis software to analyze the correlation between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF) Outputs (OU), Educational Outcomes (EO) were analyzed for correlation. According to the results of the correlation test of each variable, it can be seen that there is a significant correlation between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU) and Educational Outcomes (EO). There is a significant correlation between them with correlation coefficients of 0.858, 0.897, 0.909, 0.873, 0.865, and 0.888, respectively, with a significance level of <.001.

Table 3 Results of the correlation test for each variable

	IN	PO	AD	FL	EF	OU	EO
IN	1						
PO	.920**	1					
AD	.868**	.896**	1				
FL	.847**	.846**	.931**	1			
EF	.879**	.893**	.930**	.922**	1		
OU	.835***	.859***	.875***	.806***	.889***	1	
EO	.858***	.897***	.909***	.873***	.865***	.888***	1

* $P < .05$, ** $P < .01$, *** $P < .001$

Source: Organized by this study

Variance analysis

Gender

Table 4 T-test results of independent samples with different genders

	Mean (SE)		F	P	t	df	P
	Male (N=135)	Female (N=261)					
IN	11.985 (4.046)	11.444 (3.538)	1.368	0.243	1.314	241	0.190
PO	11.800 (3.949)	11.395 (3.439)	1.361	0.244	1.011	241	0.313
AD	11.630 (3.886)	11.165 (3.364)	1.595	0.207	1.180	240	0.239
FL	11.726 (3.988)	11.176 (3.544)	0.576	0.448	1.349	245	0.178
EF	11.933 (3.916)	11.356 (3.356)	1.443	0.230	1.458	237	0.146
OU	11.632 (3.886)	11.185 (3.364)	1.596	0.208	1.180	240	0.239
EO	11.728 (3.988)	11.196 (3.544)	0.578	0.450	1.349	245	0.178

* $P < .05$, ** $P < .01$, *** $P < .001$

Source: Organized by this study

According to the results of independent samples t-test under different genders shown in the above table, it can be seen that there is no significant difference ($P > 0.05$) between college students under different genders in terms of Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), Educational Outcomes (EO) were not significantly different ($P > 0.05$).

Grade

Table 5 Results of one-factor AVONA test at different grades

		Descriptive statistics			Variance chi-square test				AVONA	
		N	Mean	SE	F	df1	df2	P	F	P
IN	Freshman	52	11.615	4.131	0.692	3	392	0.557	1.423	0.236
	Sophomore	157	11.994	3.826						
	Junior	65	11.785	3.599						
	Senior	122	11.082	3.442						
PO	Freshman	52	11.692	3.843	0.090	3	392	0.965	1.377	0.249
	Sophomore	157	11.898	3.692						
	Junior	65	11.477	3.527						
	Senior	122	11.025	3.460						
AD	Freshman	52	11.769	3.601	0.558	3	392	0.643	1.451	0.227
	Sophomore	157	11.592	3.697						
	Junior	65	11.292	3.472						
	Senior	122	10.803	3.359						
FL	Freshman	52	11.500	3.918	0.381	3	392	0.766	0.646	0.586
	Sophomore	157	11.541	3.755						
	Junior	65	11.554	3.531						
	Senior	122	10.975	3.656						
EF	Freshman	52	11.692	3.708	0.289	3	392	0.833	1.080	0.358
	Sophomore	157	11.834	3.642						
	Junior	65	11.646	3.453						
	Senior	122	11.082	3.446						
OU	Freshman	52	11.770	3.600	0.588	3	392	0.443	1.631	0.327
	Sophomore	157	11.590	3.670						
	Junior	65	11.292	3.470						
	Senior	122	10.824	3.358						
EO	Freshman	52	11.444	3.840	0.110	3	392	0.865	1.378	0.749
	Sophomore	157	11.777	3.692						
	Junior	65	11.778	3.527						
	Senior	122	11.095	3.450						

* $P < .05$, ** $P < .01$, *** $P < .001$

Source: Organized by this study

In summary, it can be learned that university students under different grades on Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), Educational Outcomes (EO) do not There is a significant difference ($P>0.05$).

Major

Table 6 AVONA test results for single factors under different majors

		Descriptive statistics			Variance chi-square test				AVONA	
		N	Mean	SE	F	df1	df2	P	F	P
IN	Science and Engineering	265	11.811	3.841	0.891	2	393	0.411	1.423	0.236
	Literature and History	107	11.019	3.328						
	Arts and Sports	24	12.333	3.875						
PO	Science and Engineering	265	11.725	3.766	0.031	2	393	0.970	0.031	0.249
	Literature and History	107	10.925	3.226						
	Arts and Sports	24	12.125	3.443						
AD	Science and Engineering	265	11.551	3.703	0.133	2	393	0.875	0.133	0.227
	Literature and History	107	10.626	3.101						
	Arts and Sports	24	11.917	3.438						
FL	Science and Engineering	265	11.634	3.808	0.059	2	393	0.943	0.059	0.586
	Literature and History	107	10.551	3.374						
	Arts and Sports	24	12.000	3.551						
EF	Science and Engineering	265	11.785	3.705	0.710	2	393	0.492	0.710	0.358
	Literature and History	107	10.879	3.086						
	Arts and Sports	24	12.000	3.671						
OU	Science and Engineering	265	12.561	3.401	0.243	2	393	0.475	0.233	0.327
	Literature and History	107	11.226	3.241						
	Arts and Sports	24	11.417	3.438						
EO	Science and Engineering	265	11.834	3.808	0.159	2	393	0.643	0.159	0.446
	Literature and History	107	10.161	3.374						
	Arts and Sports	24	12.401	3.551						

* $P<.05$,** $P<.01$,*** $P<.001$

Source: Organized by this study

In summary, it can be learned that college students under different majors in Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), Educational Outcomes (EO) do not There is a significant difference ($P>0.05$).

Political affiliation

Table 7 Results of one-factor AVONA test under different political affiliation

		Descriptive statistics			Variance chi-square test				AVONA	
		N	Mean	SE	F	df1	df2	P	F	P
IN	CPC Member	75	11.427	3.557	1.827	2	393	.162	0.979	0.377
	Communist	297	11.599	3.701						
	Youth League									
	Member									
PO	the Masses	24	12.625	4.451	1.189	2	393	.305	1.662	0.191
	CPC Member	75	11.400	3.409						
	Communist	297	11.461	3.614						
	Youth League									
AD	Member				.678	2	393	.508	1.406	0.246
	the Masses	24	12.833	4.219						
	CPC Member	75	11.267	3.215						
	Communist	297	11.242	3.579						
FL	Youth League				1.314	2	393	.270	1.694	0.185
	Member									
	the Masses	24	12.500	4.139						
	CPC Member	75	10.987	3.543						
EF	Communist	297	11.360	3.682	1.598	2	393	.204	1.077	0.342
	Youth League									
	Member									
	the Masses	24	12.583	4.353						
OU	CPC Member	75	11.440	3.338	1.718	2	393	.408	1.506	0.346
	Communist	297	11.498	3.551						
	Youth League									
	Member									
EO	the Masses	24	12.583	4.313	1.259	2	393	.325	1.772	0.291
	CPC Member	75	11.226	3.444						
	Communist	297	11.272	3.126						
	Youth League									
EO	Member				11.751					
	the Masses	24	12.470	4.429						
	CPC Member	75	11.960	3.779						
	Communist	297	11.751	3.674						
	the Masses	24	12.773	4.269						

* $P < .05$, ** $P < .01$, *** $P < .001$

Source: Organized by this study

In summary, it can be learned that there is no significant difference between university students with different political affiliations on Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), and Educational Outcomes (EO). There is no significant difference ($P > 0.05$).

Academic Achievements

Table 8 Results of One-Factor AVONA Tests for Different Academic Achievements

		Descriptive statistics			Variance chi-square test				AVONA	
		N	Mean	SE	F	df1	df2	P	F	P
IN	Excellent	45	12.067	2.104	6.785	4	391	<.001	0.866	0.485
	Good	67	11.776	3.876						
	Medium	228	11.382	4.085						
	Pass	44	12.341	2.957						
	Fail	12	11.250	2.633						
PO	Excellent	45	11.911	2.087	6.396	4	391	<.001	0.908	0.459
	Good	67	11.836	3.800						
	Medium	228	11.254	3.965						
	Pass	44	12.159	2.877						
	Fail	12	11.417	2.353						
AD	Excellent	45	11.156	2.296	5.583	4	391	<.001	0.819	0.514
	Good	67	11.567	3.644						
	Medium	228	11.118	3.928						
	Pass	44	12.068	2.688						
	Fail	12	11.750	1.422						
FL	Excellent	45	11.511	2.537	7.002	4	391	<.001	0.579	0.678
	Good	67	11.299	3.830						
	Medium	228	11.197	4.072						
	Pass	44	12.091	2.876						
	Fail	12	11.667	1.371						
EF	Excellent	67	11.746	3.636	7.231	4	391	<.001	0.911	0.457
	Good	228	11.316	3.993						
	Medium	45	11.733	1.876						
	Pass	44	12.364	2.507						
	Fail	12	11.333	2.103						
OU	Excellent	67	11.156	2.296	5.583	4	391	<.001	0.419	0.714
	Good	228	11.567	3.644						
	Medium	45	11.118	3.928						
	Pass	44	11.567	3.644						
	Fail	12	11.750	1.422						
EO	Excellent	67	11.511	2.537	8.002	4	391	<.001	0.879	0.778

	Descriptive statistics			Variance chi-square test				AVONA	
	N	Mean	SE	F	df1	df2	P	F	P
Good	228	11.299	3.830						
Medium	45	11.197	4.072						
Pass	44	12.091	2.876						
Fail	12	12.091	2.876						

* $P < .05$, ** $P < .01$, *** $P < .001$

Source: Organized by this study

In summary, there is no significant difference between university students with different Academic Achievements in Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), and Educational Outcomes (EO). There is no significant difference ($P > 0.05$).

Types of Student Source

Table 9 Independent Samples T-Test Results for Different Types of Student Source

	Mean (SE)		F	P	t	df	P
	Urban (N=214)	Rural (N=182)					
IN	11.692 (3.979)	11.555 (3.407)	3.038	0.082	0.368	394	0.713
PO	11.621 (3.873)	11.429 (3.308)	2.397	0.112	0.535	394	0.593
AD	11.416 (3.809)	11.214 (3.232)	3.183	0.075	0.570	394	0.569
FL	11.416 (3.975)	11.302 (3.371)	2.406	0.122	0.308	394	0.758
EF	11.724 (3.782)	11.352 (3.284)	1.159	0.282	1.049	394	0.295
OU	11.821 (3.873)	11.329 (3.308)	3.397	0.122	0.545	394	0.693
EO	11.516 (3.809)	11.414 (3.232)	2.183	0.085	0.590	394	0.690

* $P < .05$, ** $P < .01$, *** $P < .001$

Source: Organized by this study

In summary, it can be learned that there is no significant difference ($P > 0.05$) in Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), and Educational Outcomes (EO) among university students under different Types of Student Source. There was no significant difference in any of them ($P > 0.05$).

Regression analysis

According to the regression model summary analysis results, R is 0.952, R-squared is 0.906, and adjusted R-squared is 0.905, indicating that the independent variables can explain 90.6% of the reasons for the changes in the dependent variable. The model fits well. D-W value = 2.112 < 2.3, which is around 2, indicating no autocorrelation in the model, and the model is better constructed. In the results of the ANOVA analysis, the statistic F is 941.789, corresponding to $p = 0.000 < 0.001$. Therefore, this regression model is meaningful.

Table 10 Results of the summary analysis of the regression model

Dependent Variable	Independent variable	Model summary				ANOVA	
		R	R-square	Adjusted R-squared	Durbin-Watson.	F	p
Educational Outcomes (EO)	(Content)						
	Inputs (IN)						
	Processes (PO)						
	Adaptation (AD)	.952	.906	.905	2.112	941.789	.000
	Feedback Loop (FL)						
	External Factors (EF)						
	Outputs (OU)						

* $p < .05$, ** $p < .01$, *** $p < .001$

Source: Organized by this study

According to the results of linear regression analysis, the regression coefficient of Inputs (IN) is 0.118, $t=2.944$, $p=0.003 < 0.01$, which indicates that Inputs (IN) have a significant effect on Educational Outcomes (EO). The regression coefficient of Processes (PO) is 0.186, $t=4.117$, $p=0.000 < 0.001$, indicating that Processes (PO) has a significant effect on Educational Outcomes. The regression coefficient of Adaptation (AD) is 0.312, $t=6.099$, $p=0.000 < 0.001$, indicating that Adaptation (AD) has a significant effect on Educational Outcomes (EO). The regression coefficient of Feedback Loop (FL) is 0.354, $t=8.463$, $p=0.000 < 0.05$, indicating that Feedback Loop (FL) has a significant effect on Educational Outcomes (EO). The regression coefficient of External Factors (EF) is 0.354, $t=8.463$, $p=0.000 < 0.05$, indicating that External Factors (EF) have a significant effect on Educational Outcomes (EO). The regression coefficient of Outputs (OU) is 0.354, $t=8.463$, $p=0.000 < 0.05$, indicating that Outputs (OU) have a significant effect on Educational Outcomes (EO). As can be seen from the table, Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), and Educational Outcomes (EO) variables corresponding to the VIF values of 7.292, 8.725, 8.832, 7.880, 7.527, and 8.429 are less than 10, indicating that there is no covariance problem.

Table 11 Results of linear regression analysis

Dependent Variable	Independent variable	B	SE	β	t	p	Covariance Diagnostics	
							Tolerability	VIF
Educational Outcomes (EO)	(Content)	.483	.190		2.541	.011		
	Inputs (IN)	.118	.040	.123	2.944	.003	.137	7.292
	Processes (PO)	.186	.045	.189	4.117	.000	.115	8.725
	Adaptation (AD)	.312	.051	.311	6.099	.000	.119	8.832

Dependent Variable	Independent variable	B	SE	β	t	p	Covariance Diagnostics	
							Tolerability	VIF
	Feedback Loop (FL)	.354	.042	.368	8.463	.000	.127	7.880
	External Factors (EF)	.671	.946	.066	2.824	.005	.115	7.527
	Outputs (OU)	.574	.946	.014	2.607	.004	.281	8.429

* $p < .05$, ** $p < .01$, *** $p < .001$

Source: Organized by this study

Path analysis

According to the standard formula for model identification ($t \leq q(q+1)/2$) the total degrees of freedom and t-value can be calculated. In this study, there are 33 observations, and the total degree of freedom calculated is $q(q+1)/2 = 561$. According to the constructed validated factor analysis model diagram, it can be seen that there are a total of 77 parameters to be estimated in this model, which are the 33-factor loadings, the error variance of the 33 measures, and the correlation coefficients between the 11 factors so that it can be calculated $t = 77 < 210$, which is in line with the necessary conditions for model identification.

From the results of the analysis of the model fitting indicators, it can be seen that the absolute fit indicator ($\chi^2/df = 8.585$, RMSEA = 0.139, AGFI = 0.628), and the streamlined fit indicator (NFI = 0.884, TLI = 0.876, CFI = 0.896, IFI = 0.896, and RFI = 0.862), do not meet the standard, but are close to the standard. The absolute fitness index RMR = 0.031, the streamlined fitness index PNFI = 0.744, and PCFI = 0.754 all meet the satisfactory standard. Therefore, the fit of the CFA model constructed in this study is good, and the validity of the formal questionnaire is more reliable.

Table 12 Results of the analysis of model fit indicators

index	criteria	results
χ^2	-	1373.625
df	-	160
χ^2/df	< 5	8.585
GFI	> 0.9	0.717
AGFI	> 0.9	0.628
RMSEA	< 0.10	0.139
RMR	< 0.08	0.031
CFI	> 0.9	0.896
NFI	> 0.9	0.884
TLI	> 0.9	0.876
IFI	> 0.9	0.896
RFI	> 0.9	0.862



index	criteria	results
PNFI	> 0.5	0.744
PCFI	> 0.5	0.754

Source: Organized by this study

In this study, we used the maximum likelihood estimation method. We chose to select the 95% confidence interval of the percentile the 95% confidence interval of the bias correction, and the significance of the path coefficients between the independent variables and the dependent variable based on the critical ratio (C.R.), the confidence interval of the path coefficients (confidence interval of the upper and lower bounds of the C.R.), and the two-tailed significance. Based on the results of the path analysis, it can be seen that the relationship between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), and Educational Outcomes (EO) is significant at the 0.05 level of significance. Research hypotheses H7-H10 were established.

Discussion

This study delves into the innovative ways of moral education in colleges and universities, taking Sichuan Institute of Industrial Science and Technology as an example, distributes and recovers questionnaire data through questionnaire survey method, and analyzes the relationship between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), and Educational Outcomes (EO) were analyzed. It emphasizes the importance of inputs, processes, and outputs while considering the dynamic nature of the educational system through feedback loops and interactions, The external factors highlight the contextual influences.

Regarding gender, "female" accounted for the highest percentage, followed by "male." Regarding grades, "sophomore" accounted for the highest proportion, followed by "senior". As for majors, "science and engineering" accounted for the highest proportion, followed by "literature and history". In terms of political profile, "member of the Communist Youth League" accounted for the highest, followed by "member of the Communist Party of China (CPC)". Regarding academic performance, "medium" accounted for the highest, followed by "good".

According to the results of the correlation test, it is found that there is a significant correlation between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU) and Educational Outcomes (EO). correlations, all with a significance level.

College students of different genders, different grades, different majors, different political profiles, different academic achievements, and different types of sources of students had a significant correlation between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), Educational Outcomes (EO) were not significantly different.

According to the results of linear regression analysis and path analysis, Input (IN) significantly affects Educational Outcomes (EO). Processes (PO) significantly affect Educational



Outcomes (EO). adaptation (AD) significantly affects Educational Outcomes (EO). Feedback Loop (FL) significantly affects Educational Outcomes (EO). External Factors (EF) significantly affect Educational Outcomes (EO). Outputs (OU) significantly affect Educational Outcomes (EO).

Conclusions

This study delves into the innovative ways of moral education in colleges and universities, taking Sichuan Institute of Industrial Science and Technology as an example, distributes and recovers questionnaire data through questionnaire survey method, and analyzes the relationship between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU) and Educational Outcomes (EO) were analyzed. Based on the above analysis:

1. Descriptive statistics analysis. According to the results of descriptive statistics of background variables, it was found that in terms of gender, "female" accounted for the highest percentage of 65.9%, followed by "male" with a percentage of 34.1%. In terms of grade, "sophomore" accounted for the highest proportion of 40.0%, followed by "senior" with 30.8%. As for majors, "science and engineering" accounted for the highest proportion, at 66.9%, followed by "literature and history", at 27.0%. In terms of political profile, "member of the Communist Youth League" accounted for the highest proportion of 75.0%, followed by "member of the Communist Party of China (CPC)" with a proportion of 18.9%. In terms of academic performance, "medium" accounted for the highest percentage, 57.6%, followed by "good", with a percentage of 16.9%. As for the type of student source, "urban" accounted for 54.0%, followed by "rural" with 46.0%.

2. Correlation analysis. According to the results of the correlation test, it is found that there is a significant correlation between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU) and Educational Outcomes (EO). correlations, all with a significance level of $<.001$.

3. Analysis of variance. According to the results of the difference test, it was found that college students of different genders, different grades, different majors, different political profiles, different academic achievements, and different types of sources of students had a significant correlation between Inputs (IN), Processes (PO), Adaptation (AD), Feedback Loop (FL), External Factors (EF), Outputs (OU), Educational Outcomes (EO) were not significantly different ($P>0.05$).

4. Regression analysis and path analysis. According to the results of linear regression analysis and path analysis, it can be seen that the regression coefficient of Inputs (IN) is 0.118, $t=2.944$, $p=0.003<0.01$, which indicates that there is a significant effect of Inputs (IN) on Educational Outcomes (EO). The regression coefficient of Processes (PO) is 0.186, $t=4.117$, $p=0.000<0.001$, indicating that Processes (PO) has a significant effect on Educational Outcomes (EO). The regression coefficient of Adaptation (AD) is 0.312, $t=6.099$, $p=0.000<0.001$, indicating that Adaptation (AD) has a significant effect on Educational Outcomes (EO). the regression coefficient of the Feedback Loop (FL) is 0.354, $t=8.463$, $p=0.000<0.05$, indicating that the



Feedback Loop (FL) has a significant effect on Educational Outcomes (EO). The regression coefficient of External Factors (EF) is 0.354, $t=8.463$, $p=0.000<0.05$, indicating that External Factors (EF) have a significant effect on Educational Outcomes (EO). The regression coefficient of Outputs (OU) is 0.354, $t= 8.463$, $p=0.000<0.05$, indicating that Outputs (OU) have a significant effect on Educational Outcomes (EO).

Limitations

The study has shortcomings in that the four dimensions of moral cognition, moral emotion, moral behavior, and moral will are not further subdivided, and the sample size does not cover the colleges and universities in Sichuan Province or even the whole country.

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