Sustainable Development Strategies of Private Universities under the Guidance of Social Responsibility—A Case Study of Private Universities in Guangdong Province

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Abstract

Talent training and scientific research are the most basic functions of private colleges and universities, and they should also become the social responsibility that colleges and universities must fulfill. This research aimed to: 1. analyze the impact of talent training responsibility and scientific research responsibility on the sustainable development of private colleges and universities through social performance; 2. strive to explore the sustainable development strategy of private universities from the aspects of strengthening the establishment of talent training brand and enhancing the strength of scientific research. This study conducted a random sample survey on the questionnaire distribution; 535 questionnaires were recovered, the answer time was short, and the information was incomplete. A total of 501 valid questionnaires were collected, which were investigated and analyzed below. In this study, using the SPSS. Version 27 performed the reliability and validity analysis of the questionnaire data. The research results were as follows: 1. Talent cultivation and Scientific research responsibility significantly positively impact Sustainable Development Strategies of Private Universities; 2. Social responsibility plays a partial intermediary effect. The results and conclusions provide a reference for exploring the sustainable development of Chinese private universities under the social responsibility framework.

Keywords: talent cultivation responsibility; social responsibility; scientific research responsibility; sustainable development strategies of private universities

Introduction

Today's society is an era of "responsibility competition," corporate social responsibility has always been a research hotspot in the academic circle. As a unique "enterprise," Chinese private universities' social responsibility issues have gradually attracted wide attention from society. All along, Chinese private colleges and universities have actively performed their duties of teaching and educating people, playing a significant role in improving citizens' quality, cultivating high-quality talents, conveying human resources, increasing research results, and promoting economic and social development. Cultural teaching, professional teaching, scientific research, and the cultivation of new scientists are the three functions of the university (Gasset, 1946). The responsibility areas of colleges and universities are divided into two categories: academic responsibility and non-academic responsibility. Colleges and universities should use teaching, scientific research, and other work to fulfill their social responsibilities. When fulfilling their responsibilities for scientific research, universities can promote academic progress, cultivate talents, solve problems, and positively contribute to society by enhancing Chinese private universities' academic status and attractiveness to achieve better social performance (Wu & Chen, 2020). This study will discuss the responsibility of talent cultivation, scientific research, social performance, and sustainable development of universities into a framework system. Data was collected through a survey questionnaire and analyzed using standardized statistical tools. At the same time, descriptive statistics, correlation analysis, and structural equation modeling were used to measure and verify the relationship between fulfilling talent cultivation responsibilities, scientific research responsibilities, social responsibilities, and sustainable development strategies in order to reveal the impact relationship between universities fulfilling social responsibilities and sustainable development strategies and discuss the intermediary role of social performance.

Research Objective

1. To analyze the impact of talent training responsibility and scientific research responsibility on the sustainable development of private colleges and universities through social performance.

2. To explore the sustainable development strategy of private universities by strengthening the establishment of a talent training brand and enhancing the strength of scientific research.

Scope of Research

Content of the study: After conducting a systematic review of the relevant literature, this paper will reveal that most research on the development of private universities primarily focuses on development strategies, governance systems, connotation development, and development pathways (Gasset, 1946). However, there is a relative lack of studies examining the impact of fulfilling responsibilities related to talent cultivation and scientific research on private universities' social performance and sustainable development strategies. Therefore, this study will explore how private universities in Guangdong Province can promote sustainable, healthy, and high-quality development by actively fulfilling their social responsibilities. The chapter Introduction defines the research purpose, identifies key research problems, outlines the significance of the study, and clarifies core concepts, thereby establishing a theoretical and methodological basis for the subsequent research. The Research Methodology involves screening and analyzing established scales related to corporate social responsibility, university social responsibility, and sustainable development strategies of private universities. The collected data were analyzed using statistical tools such as AMOS and SPSS. First, a descriptive statistical analysis will assess the sample characteristics. Next, the reliability and correlation of the questionnaire will be evaluated. Finally, a structural equation model (SEM) will be employed to examine the relationships among core variables, focusing on the impact of social responsibility on the social performance and sustainable development strategies of private universities. The Conclusion, Discussion, and Recommendations summarize the study's main conclusions, identify its limitations, and offer recommendations for future research. Additionally, by discussing the current research findings, the chapter envisions strategies and pathways for the sustainable development of Chinese private universities guided by social responsibility.

Population and Sample: This study will focus on 23 private undergraduate universities in Guangdong Province, China, targeting approximately 575,000 individuals (Guangdong Provincial Department of Education, 2024). The research will examine the social responsibility roles of teachers, students, parents, and personnel from social units and enterprises, as well as education organizations and institutions across different demographic segments. This approach objectively and accurately reflects how Chinese private universities fulfill their social responsibilities (Babbie, 2020). Given that this study utilizes a questionnaire with 46 items, the teachers and students, parents, social units (enterprise personnel), and educational organizations (institutions) in private colleges and universities

in Guangdong province were selected as the sampling overall, In order to meet the basic requirements for effective analysis, Then, according to the stratified sampling ratio, a total of 500 samples were randomly selected from each layer of the sample population, and questionnaires were distributed to them for investigation.

Area: This study focuses on 23 private undergraduate universities in Guangdong Province, China. The target population includes a wide range of stakeholders, including teachers and students, parents, related personnel of educational institutions and enterprises, and social organizations.

Time: The sample will comprise various groups, including college teachers, students, parents, personnel from social units and enterprises, and representatives from educational organizations and institutions. Given the distinct characteristics of these groups, stratified sampling is employed to ensure the sample accurately reflects the overall population. The sample is divided into four strata: 50% from teachers and students, 30% from social unit/enterprise personnel, and 10% from students' parents and educational organizations/institutions. This approach enhances the comprehensiveness of the sample (Kothari, 2004).

Literature Reviews

The influence of Talent Cultivation Responsibility and scientific research responsibility on the Sustainable Development of private universities in China

Gasset (1946) pointed out that cultural teaching, professional teaching, scientific research, and training for new scientists are the three core functions of the university. Bok (1981) divides the social responsibility of a university into academic responsibility and non–academic responsibility. From an academic point of view, the social responsibilities of universities include providing education for the public, encouraging students to think independently, promoting students' moral development, and improving the overall moral quality of society. Bok (1981) pointed out that the social responsibility of universities is not only in academic research and technology transfer but also in improving productivity through innovation and considering the social and economic value of new technologies and their potential negative impacts. Babich et al. (2008) emphasize the social responsibility of universities, including providing new scientific research opportunities. In 2022, the Global University Innovation Network (GUNI) and UNESCO jointly released the New Vision for Higher Education 2030 report, stating that higher education institutions should build a bridge between science and society

and meet future challenges through responsible research and innovation. Therefore, by actively fulfilling the social responsibility of talent cultivation and scientific research, universities can establish a brand image and be widely recognized by society to promote private universities' sustainable and high–quality development. Based on the above analysis, the following assumptions are proposed in this study:

H1: Performing the responsibility of talent cultivation positively impacts the sustainable development of private universities in China.

H2: Performing the responsibility of scientific research positively impacts the sustainable development of private universities in China.

The influence of talent cultivation responsibility and scientific research responsibility on the social responsibility of Private universities in China

Arntzen (2010) believes that the social responsibility of universities is a kind of social communication on the primary labor force in cognition, education, environment, and labor factors to promote the sustainable development of human beings. Teixeira et al. (2022) show the expectations and demands of colleges and universities through the multidimensional evaluation of colleges and universities and improve the overall performance of colleges and universities. Altbach and Salmi (2011) discussed the importance of fundraising funds, international cooperation, and research output and pointed out the impact of these factors on the outstanding development of universities. Estermann and Claeys–Kulik (2017) study the perspective of global university rankings on universities and adopt development strategies to improve the ranking and reputation of universities to enhance the reputation and attractiveness of universities. Therefore, when fulfilling the responsibility of talent cultivation and scientific research, universities can make positive contributions to society by promoting academic progress and cultivating talents to improve the status of universities and achieve better social performance. Based on the above analysis, the following assumptions are proposed in this study:

H3: Talent cultivation responsibility positively impacts the social responsibility of private universities in China.

H4: Scientific research responsibility positively impacts the social responsibility of private universities in China.

The influence of social responsibility on the sustainable development of Private Universities in China

Arntzen (2010) pointed out that university social responsibility is through social, economic, technological, and environmental participation to contribute to the sustainable development of the local and even global communities; Sharma (2015) pointed out that the most important role of universities is to produce highly skilled human resources, develop new cultural values, and cultivate people in the new social era; In September 2022, The World Higher Education Report ——, the New Vision for Higher Education for 2030, jointly compiled by the Global University Innovation Network (GUNI) and UNESCO, points out that higher education institutions should first build a solid bridge between science and society, conduct responsible research and innovation, to meet the future challenges. In fulfilling the responsibility of talent cultivation and scientific research, private universities produce remarkable social performance in various aspects, which not only improves the social recognition and brand value of the universities but also enhances their influence in running schools, thus promoting the sustainable development of private universities. Based on the above analysis, the following assumptions are proposed in this study:

H5: Social responsibility positively impacts the sustainable development of private universities in China.

The influence of the mediating role of responsibility

Symaco and Tee (2019) emphasized the established role of higher education in the provision and production development; Chile and Black (2015) stated that the participation of universities and communities has brought positive results to students, schools, and communities and benefited the brand recognition and good reputation of universities in the community. Etzkowitz and Leydesdorff (1998) believe that the connection and interaction between universities and industries transform the expansion of knowledge into entrepreneurial science, which not only promotes the development of universities themselves but also drives the development of local governments. Clark (2001) points out that universities can perform and contribute to social participation through scientific research. Hayashi (2003) believes that university scientific research is one of the important ways to transform academic research into value and promote local economic and social development. Benneworth and Hospers (2007) believe that modern universities contribute by generating research and consulting revenue, upgrading the regional business environment, and potentially improving the regional value

acquisition process due to their mission. Therefore, universities fulfilling talent cultivation and scientific research responsibility through social performance has contributed to expanding the university's strength and effectively setting up the brand value to promote the sustainable development of Chinese private universities. Based on the above analysis, the following assumptions are proposed in this study:

H6: Talent cultivation responsibility affects the sustainable development of private universities in China through the intermediary effect of social responsibility.

H7: Scientific research responsibility affects the sustainable development of private universities in China through the intermediary effect of social responsibility.

The specific research conceptual framework is shown in the figure below:

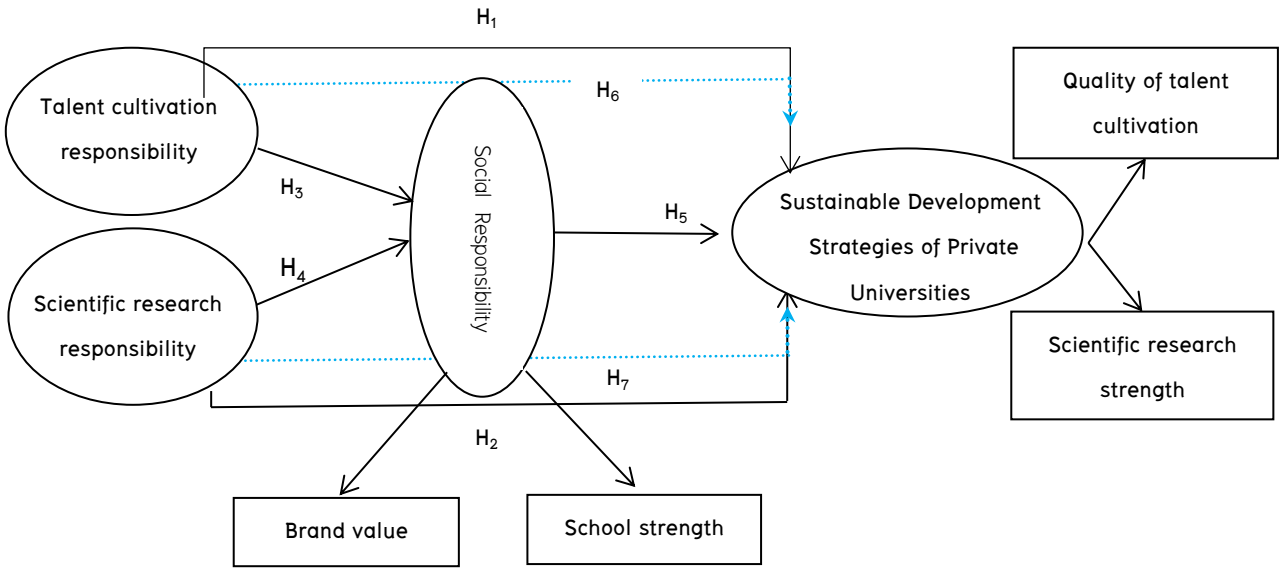

Figure 1 A conceptual framework for this research

Research Methodology

Questionnaire survey method is a common method of data collection. This study through the design of "Research on Sustainable Development Strategies of Private Universities under the Guidance of Social Responsibility——A Case Study of Private Universities in Guangdong Province" as the research topic of the questionnaire, online electronic questionnaire, social responsibility to private universities has great influence and decision of teachers and students, students' parents, social units/enterprise personnel, education organizations/ institutions surveyed groups. In this study,

the reliability validity analysis of SPSS. 27, KMO and Bartlett tests showed the overall reliability value of 0.958 and KMO of 0.955, and the data passed the Bartlett sphericity test ($p<0.05$). It indicates that the questionnaire used in this study had good reliability and validity.

Sample Selection and Data Acquisition

In this study, stratified sampling was conducted according to the proportion of 50% of teachers and students, 10% of students' parents, 30% of social units/enterprises, and 10% of educational organizations/institutions. The samples in each layer were selected by simple random sampling to ensure the equal chances of each individual being selected (Kothari, 2004). According to the method of determining sample size in Yamane (1967), if the total sample exceeds 100000, the basic sample size is 400. This study determined a target sample size of 500 copies. About the distribution of questionnaires, first of all, we in a small range of random sampling of 280 questionnaires, deleted the answer time is short, filled in the information questionnaire, recovered 263 effective questionnaires, and the pre-survey reliability analysis, validity analysis, exploratory factor analysis, and pre-survey normality test, the results are promising, data reliability quality is high, can be used for further analysis. Then, a formal survey was conducted, and 535 questionnaires were collected, of which 501 were valid, followed by reliability and validity analysis.

Reliability and Validity Tests

The questionnaire data of this study consists of 10 dimensions, including teaching guarantee responsibility, quality improvement responsibility, moral education responsibility, scientific research guarantee responsibility, scientific research achievement responsibility, scientific research service responsibility, brand value, school-running strength, talent training quality, and scientific research strength. Credit-validity analysis of the questionnaire data by SPSS.27, The overall reliability value of the questionnaire was 0.958, which explains the high-reliability quality of the study data. Validity validation using the KMO and Bartlett tests: The KMO was 0.955, Greater than 0.6. Moreover, the data passed the Bartlett sphericity test ($p<0.05$), It means that the research data is suitable for factor analysis; Then, through the information extraction of research items and the analysis of the corresponding relationship between factors and research items, Found that all study items were higher than 0.4, Means that there is a strong correlation between the study items and the factors, Suggesting that the questionnaire had a relatively good construct validity. The results are shown in Table 1 and Table 2.

Table 1 Cronbach reliability analysis

Item	Correction Total cor–correlation (CIT)	Item deleted α coefficient	Cronbach α Coefficient
TGR1	0.732	0.901	
TGR2	0.732	0.901	
TGR3	0.745	0.899	
TGR4	0.763	0.897	0.913
TGR5	0.729	0.901	
TGR6	0.719	0.902	
TGR7	0.728	0.901	
QPR1	0.691	0.817	
QPR2	0.690	0.817	0.854
QPR3	0.700	0.813	
QPR4	0.704	0.812	
MR1	0.684	0.867	
MR2	0.719	0.859	
MR3	0.742	0.853	0.884
MR4	0.723	0.858	
MR5	0.730	0.856	
SRGR1	0.683	0.805	
SRGR2	0.691	0.801	0.846
SRGR3	0.719	0.789	
SRGR4	0.639	0.823	
RSRR1	0.746	0.849	
RSRR2	0.700	0.860	
RSRR3	0.705	0.859	0.882
RSRR4	0.702	0.860	
RSRR5	0.729	0.854	
RSRS1	0.706	0.819	
RSRS2	0.715	0.815	0.859
RSRS3	0.714	0.815	
RSRS4	0.678	0.830	
BV1	0.724	0.760	
BV2	0.675	0.807	0.841
BV3	0.716	0.768	
SS1	0.687	0.735	0.819
SS2	0.658	0.765	

Item	Correction Total cor–correlation (CIT)	Item deleted α coefficient	Cronbach α Coefficient
SS3	0.670	0.752	
QPT1	0.716	0.877	
QPT2	0.703	0.879	
QPT3	0.731	0.874	0.895
QPT4	0.728	0.875	
QPT5	0.699	0.879	
QPT6	0.727	0.875	
SRS1	0.762	0.875	
SRS2	0.735	0.881	
SRS3	0.738	0.880	0.899
SRS4	0.742	0.879	
SRS5	0.775	0.872	

Table2 Validity analysis

KMO price		0.955
Bartlett Sphelicity test	Approximate chi–square	13764.799
	df	1035
	p value	0.000

Research Results

Correlation analysis of the first–level dimension

In this part, correlation analysis is used to study the correlation between Sustainable Development Strategies of Private Universities and Talent cultivation responsibility, Scientific research responsibility, and social responsibility, and the Pearson correlation coefficient is used to indicate the strength of the correlation. Details are shown in the table below.

Table 3 Correlation analysis of the first-level dimension among USDS and the other variables

	PTR	SRR	SP	USDS
PTR	1			
SRR	0.495**	1		
SP	0.594**	0.506**	1	
USDS	0.643**	0.665**	0.644**	1

* p<0.05 ** p<0.01

In the above table, PTR represents Talent cultivation responsibility; SRR represents Scientific research responsibility; SP represents social responsibility; USDS represents Sustainable Development Strategies of Private Universities.

The correlation coefficient values between Sustainable Development Strategies of Private Universities and Talent cultivation responsibility, Scientific research responsibility, and Social responsibility are respectively 0.643, 0.665, and 0.644 and show a significant level of 0.01; it also shows that there is respectively a significant positive correlation between Sustainable Development Strategies of Private Universities and Talent cultivation responsibility, Scientific research responsibility and Social responsibility.

Correlation analysis of secondary dimensions

This part uses related analysis research Quality of talent cultivation, Scientific research strength and Responsibility for teaching guarantee, Responsibility for quality improvement, The responsibility of cultivating virtue and nurturing people, The responsibility of scientific research guarantee, Responsibility for scientific research achievements, Responsibility for scientific research services, Brand value, School strength, a total of eight correlation between, use Pearson correlation coefficient to express the strength of the relationship. As shown in the table below.

Table 4 Correlation analysis of the secondary dimensions

	TGR	QPR	MR	SRGR	RSRR	RSRS	BV	SS	QPT	SRS
TGR	1									
QPR	0.567**	1								
MR	0.528**	0.563**	1							
SRGR	0.305**	0.341**	0.337**	1						
RSRR	0.386**	0.308**	0.378**	0.535**	1					
RSRS	0.326**	0.356**	0.333**	0.494**	0.518**	1				
BV	0.450**	0.477**	0.421**	0.308**	0.346**	0.340**	1			
SS	0.413**	0.432**	0.414**	0.386**	0.417**	0.368**	0.504**	1		
QPT	0.453**	0.497**	0.448**	0.432**	0.494**	0.434**	0.468**	0.471**	1	
SRS	0.479**	0.504**	0.489**	0.492**	0.513**	0.522**	0.526**	0.502**	0.542**	1

* p<0.05 ** p<0.01

From the perspective of the value of the correlation coefficient, the relationship between Quality of talent cultivation and various factors is: Responsibility for quality improvement> Responsibility for scientific research achievements> School strength>Brand value> Responsibility for teaching guarantee> The responsibility of cultivating virtue and nurturing people> Responsibility for scientific research services> The responsibility of scientific research guarantee. The correlation relationship between Scientific research strength and various factors is: Brand value> Responsibility for scientific research services> Responsibility for scientific research achievements> Responsibility for quality improvement> School strength>The responsibility of scientific research guarantee> The responsibility of cultivating virtue and nurturing people>Responsibility for teaching guarantee.

First–order confirmatory factor analysis

The first–order confirmatory factor analysis involves 10 secondary levels. Responsibility for teaching guarantee, Responsibility for quality improvement, the responsibility of cultivating virtue and nurturing people, the responsibility of scientific research guarantee, Responsibility for scientific research achievements, Responsibility for scientific research services, Brand value, school strength, Quality of talent cultivation, and Scientific research strength, the 10 secondary levels cover 49 measurements, the model fitting index as shown in table 5.

Table 5 Confirmatory factor analysis model fitting indicators

Adaptation index	CMIN/DF	RMSEA	GFI	AGFI	NFI	IFI	TLI	CFI
Adaptation standard	<3-5	<0.08	>0.85	>0.9	>0.9	>0.9	>0.9	>0.9
result	1.167	0.018	0.913	0.900	0.923	0.988	0.987	0.988
Adaptation judgment	mate	mate	mate	mate	mate	mate	mate	mate

From the test results, we can see that the CMIN / DF value is 1.167, less than the adaptation standard of 3–5, and the RMSEA value is 0.018, less than the critical value of 0.08. Meanwhile, the statistical test amounts GFI, AGFI, NFI, TLI, IFI, IFI, and CFI all reach the adaptation standard of more than 0.9, indicating that this model has a good fit.

Hypothesis verification

For hypothesis validation based on the structural equation model path, The results of the study show that, Talent cultivation responsibility has a significant positive impact on Sustainable Development Strategies of Private Universities (non–standard path coefficient is 0.278, P=0.036<0.05), Hypothesis 1 is true; Scientific research responsibility has a significant positive impact on Sustainable Development Strategies of Private Universities (non–standard path coefficient of 0.635, P<0.001), Hypothesis 2 is true; Talent cultivation responsibility had a significant positive impact on Social responsibility (non–standard path coefficient of 0.666, P<0.001), Hypothesis 3 is true; Scientific research responsibility had a significant positive impact on Social responsibility (non–standard pathway coefficient of 0.361, P<0.001), Hypothesis 4 is true; Social responsibility had a significant positive impact on Sustainable Development Strategies of Private Universities (non–standard path coefficient of 0.505, P=0.001<0.05), Hypothesis 5 holds true.

Table 6 Structural equation model path coefficient

Structural equation path			Non-standard path coefficient	S.E.	C.R.	P	Standard path coefficient
SP	<---	PTR	.666	.091	7.285	***	.625
SP	<---	SRR	.361	.088	4.112	***	.313
USDS	<---	PTR	.278	.133	2.094	.036	.221
USDS	<---	SRR	.635	.107	5.948	***	.466
USDS	<---	SP	.505	.159	3.184	.001	.428

*** represents p<0.001

Test of mediation effect

Through the test of intermediary effect, it is concluded that the intermediary path "Talent cultivation responsibility=>Social responsibility=>Sustainable Development Strategies of Private Universities" and "Scientific research responsibility => Social responsibility =>Sustainable Development Strategies of Private Universities" are all some intermediaries. This means that the responsibility of talent training and scientific research will affect the sustainable development of private colleges and universities through the intermediary effect of social performance, which means that hypothesis 6 and hypothesis 7 are valid.

Discussions

The importance of strengthening social responsibility education and practice in colleges and universities

According to the data analysis, there is a significant positive correlation between social responsibility and Sustainable Development Strategies of Private Universities, while the correlation coefficient reaches 0.644 in improving social performance. This shows that Chinese private universities' fulfillment of social responsibilities plays a positive role in talent cultivation, scientific research development, and improving social influence. Arntzen's (2010) research shows that colleges and universities can enhance students' social awareness and civic responsibility through social responsibility education and provide high-quality talents with comprehensive quality for society. Adams (2013) points out that universities can effectively enhance students' social participation by integrating social

responsibility into the curriculum and practical activities. Therefore, Chinese private universities should further enrich the education and practice forms of social responsibility.

Pay more attention to the key role of scientific research innovation in the development of private universities

According to the data, Scientific research responsibility has the most significant impact on Sustainable Development Strategies of Private Universities, with a correlation coefficient of 0.665, while the average value of the responsibility of scientific research guarantee and Responsibility for scientific research achievements are 3.571 and 3.585 respectively, indicating that the scientific research innovation of Chinese private universities plays a key role in promoting the development of schools. The average value of the latitude of responsibility for scientific research achievements is 3.585, indicating that the respondents have recognized the scientific research achievements of private universities in China and that the investment of private universities in scientific research has achieved good results. However, it is still necessary to strengthen the industrial transformation and application cooperation of scientific research achievements, so as to improve the direct contribution of scientific research to social and economic development. As Fischer (2020) emphasizes, universities can provide technical support and innovative solutions for local economic and social development by strengthening the comprehensive capacity building of teachers in scientific research and improving the conversion rate of scientific research results to achieve a win–win situation.

Strengthen the Brand value construction and School strength improvement

According to the data, the average Brand value was the lowest score among the 10 dimensions, indicating that the respondents had reservations about the social reputation and recognition of the private universities in China. As Kotler and Fox (1995) pointed out, the improvement of the brand value of universities depends not only on the quality of their education but also on the performance of their social responsibilities and public recognition. Therefore, Chinese private universities can improve their social influence and strengthen the construction of school brand value by creating a differentiated educational image. At the same time, the average value of School strength is only slightly higher than the brand value latitude, still at a low level, which indicates that Chinese private universities have great improvement in improving school strength. Fombrun (1996) pointed out that the quality of education and social reputation complement each other and that

schools can further improve social recognition by continuously improving the teaching quality, scientific research level, and employment rate.

Multi-dimensional and coordinated development to enhance the comprehensive competitiveness

Pfeffer and Salancik (1978) point out that universities must rely on external resources, such as capital, talent, and scientific research cooperation, to maintain and enhance their competitiveness. The average score of the latitude of Responsibility for teaching guarantee and the average score of Quality of talent cultivation latitude indicate that the infrastructure and educational resources of the private universities in China have been guaranteed to some extent. However, they still need to be further improved and optimized.

Conclusion

In this study, with the sustainable development strategy of private universities under the guidance of social responsibility, the relevant data were obtained through the questionnaire survey method and the data analysis of pre-survey and formal survey with Amos, SPSS, and other software, mainly drawing the following conclusions:

The sustainable development strategy of private universities has a significant positive correlation with the talent cultivation responsibility, scientific research responsibility, and social responsibility

According to the path coefficients of the structural equation model, The non-standard path coefficient of talent cultivation responsibility and scientific research responsibility on social responsibility, talent cultivation responsibility, and scientific research responsibility on the sustainable development strategy of private universities and social responsibility on the sustainable development strategy of private universities are 0.666, 0.361, 0.278, 0.635 and 0.505 respectively, which have significant positive effects. The mediation effect test, c*=0, shows that the intermediary path "talent cultivation responsibility =>social responsibility=>sustainable development strategy of private universities" and "scientific research responsibility=>social responsibility=>sustainable development strategy of private universities" are all some intermediaries. Based on this, this study's seven research hypotheses are acceptable and established.

The impact of scientific research responsibility on the sustainable development strategy of private universities is significant

According to the relevant analysis data, the correlation coefficient between the sustainable development strategy of private universities and scientific research responsibility is 0.665, higher than 0.643 and 0.644 between the sustainable development strategy of private universities and talent cultivation responsibility and social responsibility. This shows that scientific research responsibility has the most significant impact on the sustainable development strategy of private universities in China, which shows that the policy, investment, and achievement transformation strategies of private universities in China play an important role in promoting their overall sustainable development.

The dimensions of Responsibility for teaching guarantee and the responsibility of scientific research guarantee all performed well

Results show that the questionnaire in this study has high reliability and good structural validity, which indicates that the work of Chinese private universities in discipline construction, specialty setting, teaching facilities, scientific research investment, achievement transformation, and other aspects has been effective and widely accepted and recognized by the respondents.

Brand value and School strength need to be further enhanced

From the mean analysis of data, in the Responsibility for Scientific Research Achievements and Quality of Talent cultivation of 10 latitudes of average analysis, although each latitude average score is higher than 3.0 points, and the highest score of Responsibility for Scientific Research achievements of 3.585 points, but found from the data Brand value dimension of 3.296, the average score of School strength of 3.323, is lower than the average score of the other eight dimensions. These results show that there is much room for improvement in brand influence, social recognition, and comprehensive strength.

Suggestions

Strategies to improve the Quality of talent cultivation

First of all, optimize subject construction and curriculum setting: according to the theory and connotation of social responsibility of universities, private universities should strengthen discipline construction, optimize specialty setting, and effectively enhance the matching degree between

disciplines and majors and social and economic development needs. Universities need to update the curriculum system regularly and pay special attention to interdisciplinary integration so as to cultivate students' innovative and entrepreneurial spirit and practical operation ability. Secondly, strengthen the strength of teachers: increase the investment in the construction of teachers, effectively strengthen the allocation of teachers, especially introduce high-level teachers in key disciplines and professional fields in short supply, and encourage teachers to actively participate in academic activities and scientific research projects by providing scientific research and teaching support. Then, universities need to strengthen their education on social responsibility, put social responsibility education into the teaching course content, set up a social responsibility practice base, encourage students to participate in volunteer service community reform practice, promote the effective integration of moral education and practice, to cultivate students' social sense of mission and sense of responsibility, make them have the social responsibility of high-quality talents in the future.

Strategies to improve Scientific research strength

First, we need to increase investment in scientific research. Private universities should optimize the scientific research system, increase support for teachers and students through government funding, enterprise cooperation, and various channels, and actively raise research funds to ensure enough funds, places, and equipment for teachers and students of scientific research projects. Second, to promote the commercialization of scientific research achievements, private universities shall set up specialized institutions to support and help teachers and research teams to develop innovative results in market operation by strengthening cooperation with the government, enterprises, communities, villages, and other scientific research projects, actively promote the transfer and transformation of research programs, decision-making reports, science and technology, patents and other scientific research achievements. Third, Build a social service platform. Private universities should give full play to their advantages of talents and actively participate in social governance, rural revitalization, and community construction through technical support, education, and training.

Strategies to enhance social responsibility

Brand value and School strength can effectively promote the sustainable development of private universities. Therefore, Chinese private universities should take effective measures to obtain greater social performance and realize the sustainable development of schools. First, Private universities

should strengthen brand building, enhance brand value and develop brand communication strategy, optimize brand management online to fulfill the brand effect of social responsibility, improve social exposure and visibility, actively expand the influence of the school, enhance the recognition of the school from all walks of life, to enhance and deepen the brand value of private universities. Second, Private universities should improve scientific research ability and enhance school strength. Third, Private universities should establish a long-term mechanism for sustainable development. By establishing a performance evaluation system with social responsibility performance, private universities link the effects of talent training, scientific research, and social service with the rewards of teachers and students so as to encourage teachers and students to participate more in activities related to school social responsibility.

New Knowledge

1. To extend sample regions: This study mainly takes private undergraduate universities in Guangdong Province as an example. In the future, it can be expanded to a geographical scope outside Guangdong and cover private universities in more regions to increase the universality and representativeness of the sample. This will help to understand the effectiveness and differences of Chinese private universities in different regions in fulfilling their social responsibilities and sustainable development;

2. To enrich study variables: This study takes Talent cultivation responsibility, Scientific research responsibility, and social responsibility as independent variables and intermediary variables. Future research can introduce more social responsibility variables, such as economic responsibility, charity responsibility, government policy, cultural background, and other intermediary variables or adjustment variables, and further explore the analysis of these variables on the sustainable development of private universities;

3. To focus on the combination of qualitative and quantitative research methods: This study used the questionnaire research method of quantitative data. Future research can consider the quantitative research method of in-depth interviews and case analysis to obtain more comprehensive and in-depth data and information, learn more details about how to fulfill social responsibility and make the research results more comprehensive and in-depth.

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