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Research Article

A Causal Model of Students' Quality in Preschool Education College

Chun Tan [1], Supaluk Satpretpry [2] and Xizhe Zhang [3]
[1] Ph.D. in Educational Administration, Faculty of Business Administration, Southeast Asia University, Bangkok 10160, Thailand. Email: 13766483869@163.com
[2] Assoc. Prof., Ph. D., Faculty of Business Administration, Southeast Asia University, Bangkok 10160, Thailand. Email: Supaluk@sau.ac.th
[3] Ph. D., Faculty of Business Administration, Southeast Asia University, Bangkok 10160, Thailand. Email: xizhez@sau.ac.th

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ABSTRACT

This study investigates the influence of curriculum settings, teacher ability, university academic leadership, parental and social participation, and teacher personality quality on student quality. The consistency of the constructed causal model was tested using empirical data, and the direct and indirect effects of explanatory and mediating variables on the quality of 452 students from Shangrao Preschool Education College were analyzed. Data were collected using a questionnaire that measured student quality, curriculum settings, teacher ability, university academic leadership, parental and social participation, and teacher personality quality. The reliability of the explained variable (student quality) was 0.981, while the reliabilities of the explanatory variables (curriculum settings, teacher ability, university academic leadership, parental and social participation) were 0.926, 0.927, and 0.981, respectively. The reliabilities of the mediating variables (teacher ability and teacher personality quality) were 0.956 and 0.945, respectively. The findings indicate that most variables have a significantly positive impact on student quality at the 1% level, and the hypothesized causal model aligns well with the empirical data. Among the variables, teacher ability has the greatest direct impact on student quality (0.315), followed by parental and social participation (0.243), curriculum settings (0.221), university academic leadership (0.217), and teacher personality quality (0.151).

Keywords: The quality of students, causal model, influence factor, preschool education college.

Introduction

With the rapid development of modern economic construction, the demand for high-quality talents is getting stronger and stronger. Scientific, effective and reasonable quality assessment of college students has become an urgent problem to be solved. The scientific and reasonable quality assessment system of college students has a strong orientation, which can guide college students to realize their own value to the maximum extent, develop morally, intellectually and physically, and improve employment competitiveness. At the same time, a good quality assessment system will reflect more social characteristics and better train and transport qualified high-quality talents for enterprises. Secondly, perfect student quality assessment can help university management departments and university educators timely find and solve the problems in the development of students' quality training and ability, improve teaching quality and school-running level, and promote the development of university construction. For higher vocational colleges, the comprehensive quality assessment of students conforms to the needs of social development, and is also a necessary problem for the development of colleges and universities.

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Theoretical Analysis and Research Hypotheses

In a highly competitive and under-resourced higher education system, the most substantial advantage a university can have is exceptional academic leadership. It not only creates a "petri dish" for better academic work, but also provides the kinetic energy for the transformation of scientific research management mode for universities to cope with the changing knowledge economy environment, and provides an opportunity for academic leadership for the reform of scientific research organizations in universities. Organized scientific research requires general talents with strategic leadership in scientific research, reasonable organization of scientific research elements, scientific allocation of organizational power and resources, leading the organization towards the development of established goals, better promoting organizational reform and development, and at the same time, it will have a positive impact on the quality of students in scientific research.

H1: The academic leadership of university administrators is directly affecting to the quality of students.

University curriculum has an important impact on the development of students' quality, and courses of different disciplines can meet the diversified needs of students (Thompson, 2023). The curriculum of basic subjects, such as mathematics, physics and chemistry, can cultivate students' analytical thinking and logical reasoning ability. The setting of social science courses, such as history, politics, etc., can develop students' humanistic quality and social phenomenon thinking ability. In addition, the setting of professional disciplines can combine students' interests and expertise with their career plans, thus cultivating talents with professional skills and literacy.

H2: Curriculum settings is directly affecting to the quality of students.

In the process of students' quality cultivation, the cooperation between parents, society and school is of great importance (Mitchell, 2022). Parents play a vital role in a child's education, passing on values and ethics directly to students, and have an important influence on students' physical and mental health and the development of hobbies and interests. At the same time, the influence of the society on the quality of students cannot be ignored, and various industries and fields in the society are closely related to education. Through cooperation with schools, the society provides rich resources and support for schools, and provides a broad stage for students' education.

H3: Parental and social participation is directly affecting to the quality of students.

Teacher competence covers teachers' knowledge level, teaching ability, professional ethics and other aspects, which not only has an important impact on the development of teachers themselves, but also directly relates to the improvement of students' quality (Roberts, 2021). In terms of knowledge level, a knowledgeable teacher can provide more learning resources and knowledge, so that students' learning has more depth and breadth. At the same time, teachers' knowledge level can also stimulate students' desire for job hunting and promote students' active learning (Harrison, 2020). In terms of teaching ability, a teacher with good teaching ability can carry out effective classroom design, that is, adopt a variety of teaching methods and means, so that students can achieve better learning results in a relaxed and happy learning atmosphere; In terms of professional ethics, a teacher with good professional ethics can set up correct moral concepts and behavior models for students, and help students develop correct values and behavior habits.

H4: The ability of teachers is directly affecting to the quality of students.

High-quality teachers are the basic guarantee to promote quality education, in which the character of teachers plays a decisive role in this process, which will not only affect the teaching results and the effectiveness of teachers' work, but also have an important impact on the physical and mental development of students (Parker, 2021). Being enthusiastic and tolerant to students, maintaining enthusiasm for teaching work, and actively caring and helping students are excellent qualities of teachers (Morgan, 2020). The process of teaching is also a process of emotional communication between teachers and students. Positive emotions of teachers can make students think positively and remember quickly, but negative emotions will make students fall into anxiety, fear and disgust, resulting

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in slow thinking and memory difficulties (Turner, 2019). The different emotions of teachers will lead to the different learning effects of students, and then affect the quality of students.

H5: The personality quality of teachers is directly affecting to the quality of students.

The academic leadership of university administrators will create an atmosphere of scientific research and innovation in the school and drive teachers to participate in scientific research activities (Carter, 2022). The threshold for engaging in scientific research activities is high, which objectively promotes the scientific research ability of teachers in the aspects of investigation and statistics, data sorting, material writing, etc. In the process of teaching students, teachers will exchange and share their experiences and methods of participating in scientific research activities with students, thus improving the quality and ability of students related to scientific research.

H6: The academic leadership of university administrators is indirectly affecting to the quality of students through the ability of teachers.

The academic leadership of university administrators is directly related to the development of academic research of the university (Evans, 2021). A research-oriented school will inspire teachers' spirit of constant exploration and innovation, and teachers will pass this spirit of research on to students in their teaching work, and form an innovative and enterprising atmosphere in the class, thus cultivating students' quality of innovative research.

H7: The academic leadership of university administrators is indirectly affecting to the quality of students through the personality quality of teachers.

Structure the research framework as depicted in Figure 1.

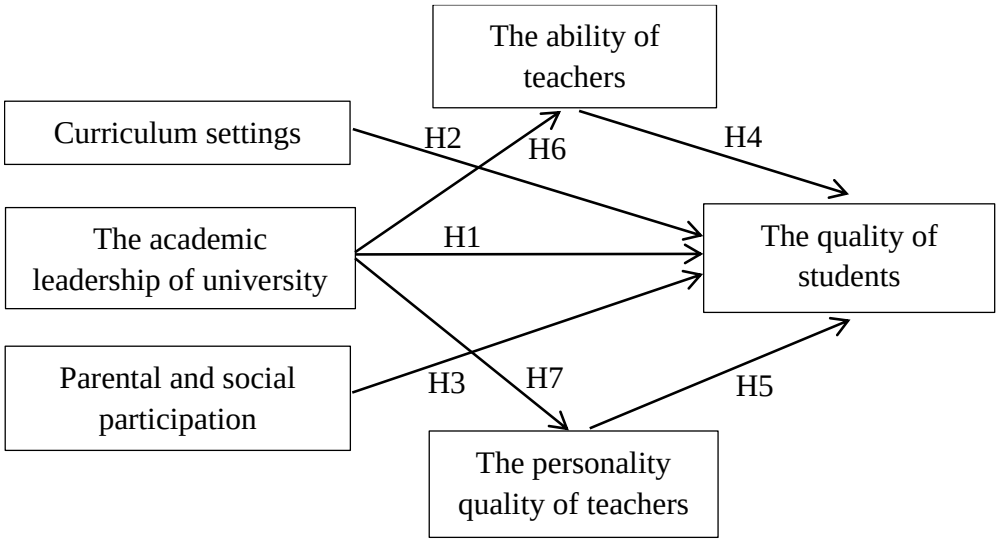

Figure 1 The causal model of students' quality in Shangrao preschool education college

Methodology

Population and Sample

This study sampled different regional characteristics, foreign language teachers and public foreign language teachers, covering more than 30 colleges and universities in 15 provinces (municipalities and autonomous regions). Foreign language teachers in colleges and universities who were willing to participate in the survey were selected to fill in the questionnaire, 500 questionnaires were distributed, and 452 valid questionnaires were collected.

The selected experts include leadership research experts, teacher education research experts and university foreign language teachers. Expert selection requirements: master degree or above; Associate

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senior title or above; More than 10 years of research in related fields; Passion for academic research; Have a certain amount of working time and energy, can cooperate well with the research. A total of 13 experts were selected in this study, and the researchers contacted the experts through E-mail, wechat and other forms.

Result

The Causal Model

From research paper focuses on exploring the influencing factors and the transmission mechanism of students' quality. Through the collation and analysis of the existing literature, it can be seen that the curriculum of colleges and universities, the academic leadership of administrators, the participation of parents and the society will have an important impact on the quality of students, and it will be conducted through the teaching ability of teachers and the personality characteristics of teachers. First, taking teachers' teaching ability as the mediating variable, the corresponding mediating effect model is constructed, as shown in formula (1), (2), (3):

$$QS_i = \alpha_0 + \alpha_1 CS_i + \alpha_2 AL_i + \alpha_3 SP_i + \mu_i + \varepsilon_i \quad (1)$$

$$QS_i = \alpha_0 + \alpha_1 CS_i + \alpha_2 AL_i + \alpha_3 SP_i + \alpha_4 TA_i + \mu_i + \varepsilon_i \quad (2)$$

$$TA_i = \alpha_0 + \alpha_1 CS_i + \alpha_2 AL_i + \alpha_3 SP_i + \mu_i + \varepsilon_i \quad (3)$$

In the formula, i represents different interviewed individuals; The explained variable QS represents the quality of students, the explanatory variables include curriculum setting (CS), academic leadership of administrators (AL), parents and social participation (SP), and the intermediate variable TA represents the teaching ability of teachers. α is the parameter to be estimated, μ_i represents the individual fixed effect, α_o is the intercept term, and ε_i is the random disturbance term.

Secondly, taking teachers' personality characteristics as the mediating variable, the corresponding mediating effect model is constructed, as shown in formula (4), (5) and (6):

$$QS_i = \beta_0 + \beta_1 CS_i + \beta_2 AL_i + \beta_3 SP_i + \mu_i + \varepsilon_i \quad (4)$$

$$QS_i = \beta_0 + \beta_1 CS_i + \beta_2 AL_i + \beta_3 SP_i + \beta_4 TC_i + \mu_i + \varepsilon_i \quad (5)$$

$$TC_i = \beta_0 + \beta_1 CS_i + \beta_2 AL_i + \beta_3 SP_i + \mu_i + \varepsilon_i \quad (6)$$

In the formula, i represents different interviewed individuals; The explained variable QS represents the quality of students, the explanatory variables include curriculum setting (CS), academic leadership of administrators (AL), parents and social participation (SP), and the intermediate variable TC represents the personality characteristics of teachers. β is the parameter to be estimated, μ_i represents the individual fixed effect, α_o is the intercept term, and ε_i is the random disturbance term.

The causal model of student quality in Shangrao preschool education college is shown in Fig1. The model contains five independent variables: academic leadership of administrators, personality quality of teachers, teacher ability, curriculum setting, parents and social participation, and one dependent variables student quality. The causality model of students' quality in this paper includes multiple action paths of different independent variables on dependent variables.

Hypothesis Testing

Testing path hypothesis

In this section, this study used Amos 26.0 to conduct path analysis. According to the data in the table 1, the path hypotheses proposed in this study are analyzed as follows:

When the academic leadership of university influence affects the quality of students (AL→QS), the standardized path coefficient value is 0.217>0, and this path presents a significance level (t=3.825, P < 0.01, which shows that the academic leadership of university influence has a significantly positive effect on the quality of students.

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When curriculum settings influence the quality of students (CS→QS), the standardized path coefficient value is 0.221>0, and this path presents a significance level (t=3.405, p<0.01), indicating that curriculum settings influence has a significant positive influence on the quality of students.

Table 1 The result of path hypothesis testing

Hypothesis	Standardized Path Coefficient	Std. Error	t	p
The quality of students <—The academic leadership of university	0.217	0.051	3.825	***
The quality of students <—Curriculum settings	0.221	0.060	3.405	***
The quality of students <—Parental and social participation	0.243	0.068	3.495	***
The quality of students <—The ability of teachers	0.315	0.055	5.048	***
The quality of students <—The personality quality of teachers	0.151	0.053	2.799	**

***, **, *. Correlation is significant at the 0.01, 0.05, 0.10 level

When parental and social participation influence the quality of students (PSP→QS), the standardized path coefficient value is 0.243>0, and this path presents a significance level (t=3.495, p<0.01), indicating that parental and social participation influence has a significant positive influence on the quality of students.

When the ability of teachers influence the quality of students (AT→QS), the standardized path coefficient value is 0.315>0, and this path presents a significance level (t=5.048, p<0.01), indicating that the ability of teachers influence has a significant positive influence on the quality of students.

When the personality quality of teachers influence the quality of students (PQT→QS), the standardized path coefficient value is 0.151>0, and this path presents a significance level (t=2.799, 0.05>p>0.01), indicating that the personality quality of teachers influence has a significant positive influence on the quality of students.

Testing mediating hypothesis

The following table is the test and analysis of whether there is a significant mediating effect between the variables in the data by using the Amos 26.0 software in this study. Bootstrap method is a flexible and effective statistical inference method, which can estimate the distribution and confidence interval of parameters without relying on assumptions. By repeated sampling and calculating statistics, more accurate parameter estimates can be obtained, which is suitable for various types of data and complex statistical models. Therefore, the Bootstrap method is used to select the 95% confidence interval, and then the mediating effect is calculated and tested by the built-in 5000 rotation iterations of the software. By observing the upper and lower limits of the 95% confidence interval and the significance P value in the results table, it can be judged whether there is a significant mediating effect.

Table 2 Bootstrap test for mediating effect

Parameter	Estimate	SE	95% CI		p	Test Result
			Lower	Upper		
CS=>AT=>QS	0.024	0.015	0.003	0.065	0.026	partial mediation
CS=>PQT=>QS	0.022	0.013	0.002	0.055	0.031	partial mediation

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The test results in Table 2 are the mediating effect test conducted by using the Bootstrap method based on AMOS software, with 5000 repeated samples, and the 95% confidence interval is calculated. From the test results in the above table, it can be seen that one dimension of transformational leadership are taken as the independent variables, and the two dimensions of psychological capital are taken as the mediating variables. In the two mediating paths with the quality of students as the dependent variable, the upper and lower 95% confidence intervals corresponding to each indirect effect value are positive, excluding 0, and the significant P value is less than the standard of the significant level of 0.05, indicating that the mediating effect is significant. According to the table above, the mediating effects of psychological capital are analyzed as follows:

In the mediation path from curriculum settings through the ability of teachers to the quality of students (CS→AT→QS), the 95% upper and lower bound confidence interval is [0.003, 0.065], which does not contain 0, indicating that the ability of teachers has a significant mediating effect between curriculum settings and the quality of students. The direct effect from curriculum settings to job satisfaction (CS→QS) is also significant, so self-efficacy plays a partial mediating effect in the relationship between curriculum settings and the quality of students. Therefore, Hypothesis H6 is true.

In the mediation path from curriculum settings through the personality quality of teachers to the quality of students (CS→PQT→QS), the 95% upper and lower bound confidence interval is [0.002, 0.055], which does not contain0, indicating that the personality quality of teachers as a significant mediating effect between curriculum settings and the quality of students. The direct effect from curriculum settings to the quality of students (CS→QS) is also significant, so the personality quality of teachers plays a partial mediating effect in the relationship between curriculum settings and the quality of students. Therefore, Hypothesis H7 is true.

Discussion

Scientific and reasonable curriculum design can provide students with a comprehensive knowledge system and practical skills. Optimizing the curriculum is an important way to improve the quality of students in preschool normal colleges and universities. By formulating scientific research policies and creating a good academic atmosphere, administrators can stimulate the enthusiasm of teachers for scientific research, and then drive students to participate in scientific research activities. Social participation is an important supplement to the cultivation of students' quality in preschool normal colleges. Through cooperation with kindergartens, community and social organizations, students are able to obtain rich practical opportunities to apply what they have learned in the classroom to actual educational scenarios.

Conclusion and Suggestions

We found that the physical and mental health of undergraduate and graduate students were highly recognized by the three parties. It shows that the cultivation and exercise of physical health and mental health are very important for college students to adapt to academic research and social life. The mean value of physical education (physical and mental education) is, which indicates that students' physical and mental status (self-knowledge, adaptability, interpersonal communication, etc.) is in an intermediate state from "partial satisfaction" to "satisfaction". It shows that there are still many areas and aspects that need to be improved. With the increasing number of global social and environmental issues, questions such as "what is real health", "various factors affecting health" and "how to protect and promote health at all levels" have gradually attracted wide attention.

The purpose of college education is to educate students to become a complete person, it is not enough to learn a useful course or professional skills that can make a living. Therefore, schools need to provide hardware and software facilities so that students have the opportunity to develop their physical, intellectual and spiritual abilities to the maximum extent.

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Cultivate students' physical health. At present, the investment, development, utilization and emphasis of sports resources in Chinese universities are still relatively lacking. High schools in China should expand the development and construction of sports hardware facilities, attach importance to the development and utilization of sports moral education resources, and truly form a campus cultural atmosphere of sports education and healthy life.

Mental health training. The essence of mental health is to focus on health rather than only psychological strengthening of publicity and education, so that students deeply understand that only when the body, spirit, psychology, attitude to life and environment are healthy in the inner, it is true and complete health.

Professional performance improvement. Colleges and universities in China need to carry out major reforms in this regard. Teachers should divide the quantification of professional achievement into the examination, homework, essays and other teaching and learning circles, optimize the quantitative indicators, so that students only have to study hard at the beginning, pay a lot of effort, only in this way can we achieve good results, and only in this way can we really cultivate students' various professional ability.

Cultivation of social practice. In order to put social practice into practice so that students feel willing to participate in social practice, in the recruitment, employment, training links with the system and mechanism to make social practice a necessary condition, and finally form a good tradition of serving the society of the university. Colleges and universities in China should let students fully participate in social practice, actively cultivate their leadership ability, and lay a solid foundation for students' success and development.

Cultivation of innovation ability. According to the requirements of students' personalized training, students are encouraged to learn by themselves under the guidance of mentors, so that students have free time to explore; Actively create conditions, organize students to participate in scientific research project training, cultivate their interest in scientific research and academic spirit.

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