Research Article

Factors And Challenges Affecting Education Quality in Selected Colleges and Universities in China: Inputs for Improvement

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ARTICLE INFO	ABSTRACT
	Based on the Theory of Quality Education framework, this quantitative descriptive study investigated the factors influencing the quality of education and its challenges in selected colleges and universities in Shenzhen City, China. It focused on curriculum and instructional design, technology integration, learning environment, and teaching quality. Stratified random sampling and a questionnaire created by the researcher were used in a descriptive quantitative manner to assess the variables influencing educational quality and its challenges. The findings showed that, with overall averages ranging from 3.36 to 3.40, respondents (n=368) strongly agreed on the key elements influencing quality education. Technology integration and curriculum and instructional design, in particular, received the highest marks (mean of 3.40), underscoring their crucial significance in modern educational environments. The results show a strong and statistically significant correlation between curriculum and instructional design and the challenges teachers face in fulfilling high requirements for education. This implies that the issues instructors confront are primarily caused by deficiencies in these areas. On the other hand, despite being seen as substantial, teaching quality and the learning environment had weak and statistically insignificant correlations to the difficulties faced, suggesting that additional elements that have not been investigated may be involved. *Keywords: quality education, challenges, college schools and universities, Shenzhen, China*

INTRODUCTION

Education quality is an ongoing process that focuses on developing skills, knowledge, and talents. It is essential in determining the character and rate of a country's social and economic growth. The most potent and successful tool for improving the environment and advancing oneself is education. This is so because people who receive high-quality education are equipped with the knowledge and skills necessary to comprehend information accurately and apply it in practical situations. Peer support, technology, instructional strategies, teacher credentials, extracurricular activities, performance recognition, educational resources, feedback from stakeholders in education, and general attitudes toward learning are all essential elements of high-quality education. (Batra & colleagues, 2024).

Standardized learning and achievement are usually highlighted in China's education system, especially in primary and secondary education, despite ongoing improvements. High academic standards and a competitive environment are highly valued. Current programs seek to improve education's quality and equity while promoting a more well-rounded strategy that includes character development and practical skills.

According to the Brainard (2021) study, excellent instruction and successful learning outcomes are important because they contribute to the entire development of people and enable schools to provide services effectively and efficiently.

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In order to be an effective teacher, one must do everything in their power, in a responsible and moral way, to promote students' learning and foster a lifelong love of learning when they leave the classroom. It demonstrates a teacher's passion for the subject, fosters a positive learning environment, employs methods and approaches that improve student learning, provides students with helpful criticism, demonstrates a genuine commitment to fostering students' academic growth, and effectively conveys the material to the class (Macquarie University website, 2019).

Universities have been the primary focus of recent research on assessing the quality of instruction in educational institutions. The total impact of teaching quality across educational settings is not given enough attention in these studies, which primarily examine curriculum, instructional strategies, and student management. For their institutions to continue growing sustainably, educational administrators must make sure that their teaching and learning strategies are effective (Huang et al., 2023).

Students' quality of education is moderately yet significantly influenced by their learning environment. Academic outcomes are significantly influenced by the efficacy of both physical and virtual learning environments. For effective learning, participants underlined the significance of having enough infrastructure, which includes contemporary classrooms and consistent internet connectivity. Additionally, it was determined that providing pleasant and safe learning environments is crucial since children are more likely to do well when they feel safe and supported (Adedoyin & Soykan, 2023).

According to Brodowicz (2021), curriculum development is a process that aims to improve the curriculum in order to raise the standard of education and the educational system. Curriculum creation is a key component in improving educational standards, according to educators. Curriculum development is seen as crucial for integrating cutting-edge techniques and strategies into the teaching and learning process, given the changing nature of the world and education.

It was believed that developing creative curricula and implementing successful teaching techniques were crucial to raising educational standards. Participants valued curriculum that foster critical thinking and problem-solving skills by integrating multidisciplinary approaches and real-world applications. Compared to traditional lecture-driven training, active learning techniques like project-based learning and flipped classrooms were favored (Günbatar, 2021).

Online and hybrid learning formats have been made possible by digital technology, which have had a significant impact on education. Information and communication technologies (ICTs) have made education more accessible, but they have also brought up issues with digital literacy and infrastructure disparities. Improving the quality of education depends heavily on the abilities and continuous professional growth of educators. Effective teaching strategies and modern pedagogical approaches are necessary to adjust to new educational technologies and methodologies (Günbatar, 2021)

The purpose of this study was to ascertain the respondents' evaluations of the elements influencing educational quality, including curriculum and instructional design, technology integration, learning environment, and teaching quality, as well as the difficulties in meeting quality education requirements.

OBJECTIVES

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METHODS

Research Design

 The research method used in this study is a quantitative method. Quantitative research methods were used to determine the evidence for a causal relationship between variables in question.

Quantitative methods were chosen to facilitate the requirements of this study, whose goal was to be objective, efficiently test hypotheses and use statistical models to explain what was observed (Yoong & Lian, 2019).

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Population, Sample Size and Sampling Technique

Since the study aimed at evaluating the factors that affect the quality of education among college universities, the challenges experience as well as the significant differences and relationship that exists between variables, the researcher focused on five selected colleges and universities in Shenzhen City, Guangdong Province, China.

Respondents of the Study

Using the Raosoft sample size calculator, the study's respondents are 383 out of the population of 94,634, with a 95% confidence level and 5% margin of error.

Selection of respondents were done using stratified sampling since the study involves dividing the participants into two groups that represents the population: students and teachers ages 18 to 59 years old. All 383 respondents were surveyed online through Questionnaire Star survey applications commonly utilized in China.

Research Instruments

A 4-point Likert Scale was used to measure the quality of education among the selected schools and universities in Shenzhen City, China, a Likert Scale is a sort of scale designed to assess a respondent's opinion on a certain issue.

Validation of the Research Instrument

The survey questionnaire was developed by the researcher and was presented during the proposal defense to the panel of experts. Some suggestions were recommended. Upon revision of the survey questionnaire, it was submitted to the research adviser and to the panel of experts for approval and validation. Upon validation of the survey questionnaire, it was then pilot tested for reliability test.

Data Gathering Procedure

The data gathered through online surveys to measure teachers and students' assessment on the existing quality assessment standards as well as the factors and challenges affecting quality assessment standards. Selected respondents from the five colleges and universities in Shenzhen City, China were selected through stratified random sampling. As stated in (*How to Use Stratified Random Sampling to Your Advantage*, 2024), Stratified random sampling (also known as proportionate random sampling or quota random sampling) is a probability sampling approach that divides the entire population into homogeneous groups (strata) to complete the sampling process.

Statistical Treatment of Data

In data analysis, Mean & Standard Deviation were used to analyze the factors affecting the quality of education as well as challenges encountered in the implementation of quality education standards; while correlation coefficient were used to determine the relationship that exists between the factors affecting quality education and the challenges encountered in the implementation of quality education standards.

RESULTS

1. *What is the assessment of the respondents on the factors affecting the quality of education*
2. *among the selected College schools and universities in Shenzhen City, China in terms of:*

a. *Teaching quality*

b. *Learning environment*

c. *Curriculum and instructional design*

d. *Technology integration*

Table 1 provides a summary of the mean and standard deviations across the factors and their verbal interpretations based on the respondents' observations are presented. The second set of the results involves the challenges encountered in the implementation of quality education.

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Factor	Indicator	Mean	STD	Interpretation
Teaching Quality	use of variety of teaching methods to accommodate different learning styles.	3.38	0.487	Strongly Agree
	application of new teaching strategies learned through training.	3.39	0.488	Strongly Agree
	The integration of real-world examples to enhance understanding of lesson	3.31	0.461	Strongly Agree
	The academic support of teacher to students	3.38	0.487	Strongly Agree
	Overall Mean	3.36	0.254	Strongly Agree
Learning Environment	The intellectual, social, emotional and physical environment affects the quality assessment standards in education.	3.4	0.49	Strongly Agree
	Instructor-student interactions affects the learning environment	3.35	0.479	Strongly Agree
	The environmental factors such as noise, temperature, humidity and air quality can affect the learning environment	3.34	0.473	Strongly Agree
	Flexibility in terms of spaces affects the teachers and students environment.	3.39	0.489	Strongly Agree
	Overall Mean	3.37	0.236	Strongly Agree
Curriculum and Instructional Design	Resource materials, instructional supervision and assessment affects the quality of education	3.38	0.487	Strongly Agree
	Alignment with the standards, consistency of objectives and comprehensiveness of the curriculum affects the quality in education.	3.41	0.492	Strongly Agree
	Government policies and educational standards affects the curriculum and instructional design of quality education	3.4	0.49	Strongly Agree
	Social, Technological and psychological factors affects the curriculum and instructional design of quality education.	3.41	0.492	Strongly Agree
	Overall Mean	3.4	0.297	Strongly Agree
Technology Integration	Technology use in the classroom leads to improved student engagement and motivation	3.4	0.49	Strongly Agree
	Perceived usefulness of technology integration in colleges affects the quality of education.	3.4	0.49	Strongly Agree
	Perceived ease of use of technology in colleges affects the quality of education.	3.39	0.488	Strongly Agree
	Technology enhances both content delivery and student interaction.	3.41	0.492	Strongly Agree
	Overall Mean	3.4	0.246	Strongly Agree
	Average Overall Mean	3.38	0.258	Strongly Agree

Table 1. Factors Affecting Quality Education

The average overall mean scores for all four factors are above 3.38, indicating a high level of agreement among respondents that these factors positively affect the quality of education.

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The standard deviations (STD) are relatively low (ranging from 0.236 to 0.297), suggesting consistency in responses.

The highest mean scores were observed in: Curriculum and Instructional Design and Technology Integration (both at 3.40). This indicates a particularly strong perceived impact of curriculum quality and technology on educational outcomes.

The overall sentiment across all factors is **"Strongly Agree"**, reinforcing that these domains are viewed as critical to ensuring quality education.

Factor	Indicator	Mean	STD	Interpretation
Teaching Quality	Inadequate understanding of learning condition	3.41	0.492	Strongly Agree
	Inadequate educational quality assurance training	3.4	0.49	Strongly Agree
	Imperfect and impartial teacher performance appraisal system	3.41	0.492	Strongly Agree
	Lack of adequate motivation and unwillingness to accept and implement recommendations	3.39	0.488	Strongly Agree
	Overall Mean	**3.4**	**0.297**	**Strongly Agree**
Learning Environment	Students lack of skills and experience	3.4	0.49	Strongly Agree
	Lack of motivation and engagement among students	3.41	0.492	Strongly Agree
	Lack of harmonized procedure	3.39	0.488	Strongly Agree
	Lack of coordination between schools, teachers, students and parents	3.4	0.49	Strongly Agree
	Overall Mean	**3.4**	**0.293**	**Strongly Agree**
Curriculum and Instructional Design	Pedagogical skills	3.39	0.488	Strongly Agree
	Readiness of teachers and attitudes	3.4	0.49	Strongly Agree
	Structural constraints	3.41	0.492	Strongly Agree
	Cultural constraints	3.39	0.488	Strongly Agree
	Overall Mean	**3.4**	**0.29**	**Strongly Agree**
Technology Integration	Lack of institutional support on technological advancements	3.41	0.492	Strongly Agree
	Technological limitations	3.39	0.488	Strongly Agree
	Internet and computer access	3.4	0.491	Strongly Agree
	High costs of Technology tools.	3.41	0.492	Strongly Agree
	Overall Mean	**3.4**	**0.297**	**Strongly Agree**
	Average Overall Mean	**3.40**	**0.294**	**Strongly Agree**

2. *What challenges do the respondents experience in the implementation of the quality*

education standards in terms of:

a. Teaching quality

b. Learning environment

c. Curriculum and instructional design

d. Technology integration

Table 2. Challenges in the Implementation of Quality Education

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The table outlines four key **factors** influencing the challenges in implementing quality education, each measured through several **indicators**. The mean scores (all around 3.4) and standard deviations (all around 0.29–0.49) consistently reflect that respondents "Strongly Agree" with the presence and impact of these challenges. The high consistency of mean scores and low standard deviations suggest a strong consensus among respondents about the presence of systemic challenges. These results imply widespread agreement that improvements are needed across all four areas to implement quality education effectively.

3. Is there a significant relationship between the factors affecting the quality of education and the challenges teachers experience?

Table 3. Relationship Between the Factors Affecting the Quality of Education and the Challenges Teachers Experience

Dimensions	Variables	Correlation Coefficient	p	**Significance**
Teaching Quality	Challenges Experience by Teachers	0.06	0.244	Not Significant
	Factors Affecting the Quality Education			
Learning Environment	Challenges Experience by Teachers	0.093	0.069	Not Significant
	Factors Affecting the Quality Education			
Curriculum and Instructional Design	Challenges Experience by Teachers	0.793	<0.001	Significant
	Factors Affecting the Quality Education			
Technology Integration	Challenges Experience by Teachers	0.795	<0.001	Significant
	Factors Affecting the Quality Education			

Table 3 analyzes the relationship between factors influencing educational quality and the difficulties faced by teachers across four areas: teaching effectiveness, learning atmosphere, curriculum and instructional planning, and the incorporation of technology. The correlation coefficient and p-values offer valuable information regarding the strength and importance of these associations.

In terms of Teaching Quality, the relationship between the factors influencing quality education and the obstacles that teachers encounter resulted in a correlation coefficient of 0.06 and a p-value of 0.244, suggesting that there is no significant association

In the Learning Environment category, the correlation coefficient stood at 0.093, with a p-value of 0.069, indicating a lack of significant association.

In the area of Curriculum and Instructional Design, a robust and considerable positive association was observed, evidenced by a correlation coefficient of 0.793 and a p-value of less than 0.001.

DISCUSSION

The research clearly shows that everyone involved agrees on what really matters when it comes to providing quality education. The key factors—curriculum and instructional design, technology integration, the learning environment, and teaching quality—received similar, solid ratings, with scores around 3.4. Notably, curriculum and technology stood out as especially important, emphasizing how vital they are in today's classrooms.

Creating a good curriculum isn't just about textbooks; it's about designing learning strategies that boost critical thinking, encourage active participation, and unleash creativity, as Kopas-Vukašinović et al. (2020) highlight.

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Student teachers are eager and ready to develop curriculum content that makes teaching easier and more effective, showing their commitment to improving education through innovative approaches like digital teaching and learning tools (DTC).

Digital technologies have truly changed how we learn, opening doors to online and hybrid classes that make education more accessible. However, Günbatar (2021) points out that while ICT expands access, it also brings challenges—like ensuring everyone has the necessary digital literacy and infrastructure.

Participants also recognize how crucial a supportive learning environment is, with an average score close to 3.37. Recent studies, such as by Adedoyin & Soykan (2023), confirm that a positive atmosphere boosts student motivation, engagement, and achievement—key ingredients for high-quality education.

Furthermore, the importance of teaching quality and effective student learning outcomes can't be overstated, as Brainard (2021) notes. Good teaching not only helps students succeed but also ensures schools provide the best possible educational services.

When looking at the challenges teachers face, the findings show a shared understanding: issues related to curriculum and instructional design are at the heart of many difficulties, plus technology use and the learning environment. Interestingly, only curriculum and instructional design had a strong, significant link with these challenges, emphasizing that problems in curriculum development and teaching methods directly impact teachers' ability to meet quality standards. Meanwhile, the links between teaching quality or the learning environment and these challenges were weaker and not statistically significant, suggesting other factors might influence those areas.

Overall, these insights point to the critical need to focus on refining curriculum and instructional strategies. Addressing these areas could help teachers overcome obstacles and improve the quality of education, especially as modern education continues to evolve rapidly.

CONCLUSION

The findings show that participants generally agree on the main factors that influence the delivery of quality education: curriculum and instructional design, technology integration, the learning environment, and teaching quality. Of particular importance is the strong and meaningful link between curriculum and instructional design and the challenges teachers face when trying to meet quality standards. This suggests that issues in how curricula are designed and instructional strategies are implemented are at the core of many difficulties teachers encounter.

On the other hand, while teaching quality and the learning environment are still seen as important, their connections to the problems faced were weaker and not statistically significant. This hints that there may be other factors—perhaps beyond what this study examined—that also impact these areas.

Overall, the results highlight how crucial effective curriculum planning and technology use are to overcoming classroom challenges, while reminding us that there's more to explore regarding what influences teaching quality and the learning atmosphere.

Implications

Education policymakers and curriculum designers should focus on ways to make instruction more engaging and effective. This means updating curriculum materials to align with modern teaching methods that encourage students to think critically, be creative, and actively participate in their learning. Since many of the challenges in curriculum and teaching are linked to how well they are implemented, providing teachers with specialized training is essential. These programs should equip them with the skills needed for curriculum development, employing diverse teaching strategies, and effectively using digital tools.

The strong emphasis on technology in the findings reminds us how important it is to keep investing in ICT infrastructure and teacher training. Efforts should aim to bridge digital literacy gaps and ensure that all schools and students have fair access to technological resources. This will help create a more equitable learning environment where students are prepared for a digital world.

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As educational leaders and stakeholders, it's vital to recognize that improving education isn't about addressing one factor alone. Instead, success lies in a comprehensive approach—reforming curricula, advancing technology, and improving the learning environment all at once.

Additionally, since the study found weak links between teaching quality, the learning environment, and perceived challenges, future research should explore other factors that might influence these relationships. Things like teachers' workload, the level of administrative support, or how actively students are involved could play significant roles in shaping educational outcomes.

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