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Original Article

A Study of Inequality in Schooling and Teacher-Student Ratios in Urban and Rural China

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Abstract

Introduction: This study investigates educational inequality between urban and rural schools in China, focusing on the impact of technology access and teacher-student ratios on educational outcomes. Data were collected from urban and rural schools, examining the availability of technological resources, teacher-student ratios, and student academic performance. **Methods:** The study employs confirmatory factor analysis and regression techniques to validate hypotheses and identify key trends. **Results:** The findings reveal that technology access and teacher-student ratios significantly affect educational outcomes. Urban schools demonstrate a substantial advantage in both areas, resulting in superior academic performance. In rural schools, resource scarcity, particularly in technology access and teacher-student ratios, constrains educational quality. Hypothesis testing highlights the statistically significant interactive effect of technology access and teacher-student ratios on educational outcomes in urban schools. In contrast, the impact of technology access in rural schools is weaker due to resource limitations, although it remains positive. **Conclusion:** The study concludes that addressing educational inequality requires a comprehensive approach, including enhancing technology access, optimising teacher-student ratios, and improving teacher quality in rural schools. These measures are critical to narrowing the urban-rural education gap and promoting equitable educational opportunities for all students.

***Keywords**: Educational Inequality; Educational Outcomes; Technology Access; Teacher-Student Ratio; Urban-Rural Gap*

Introduction

Education is one of the most critical factors in determining individual and social development and future prospects. In China, as in many other countries, educational inequality remains a long-standing problem with significant implications for social mobility, economic development, and national cohesion (Chen, Salagean & Zou, 2024). Despite China's rapid economic growth and rapid technological progress, urban-rural educational gaps remain a challenge. These gaps manifest themselves in many forms, including unequal access to educational resources, differences in teacher quality, and uneven distribution of technological tools that are increasingly important for modern education (Zhang, Wang & Song, 2024).

China's educational inequality problem is closely related to its historical, social, and economic background. For most of the 20th century, China's education system was centralised and standardised, focusing on providing education to all citizens, regardless of where they lived (Ma, Zhang & Hong, 2023). However, after the economic reforms in the late 20th century, rapid urbanisation, industrialization, and technological progress began to create significant regional differences in access to resources and opportunities. The urban-rural education gap is particularly evident, with urban areas generally

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benefiting from better-funded schools, more qualified teachers, and greater access to educational technology (Xiang & Stillwell, 2023).

The situation in rural areas is different. Despite the Chinese government's significant investment in education, rural schools often face challenges such as insufficient funding, outdated infrastructure, and a shortage of qualified teachers (Xu, 2020). Rural teachers often lack the professional development opportunities that urban teachers receive, and rural students often do not have access to modern educational technology. The digital divide between urban and rural schools is evident, with many rural schools still struggling to integrate technology into their curriculum, while urban schools are increasingly incorporating digital tools and online resources into teaching (Wang, 2019). The teacher-student ratio is another key factor affecting the quality of education. In urban schools, smaller class sizes allow for more personalised attention to students and better learning outcomes. In contrast, rural schools often face problems with crowded classrooms, which can hinder effective teaching and learning (Wang & Jang, 2016). This difference in teacher-student ratios is exacerbated by the frequent lack of qualified teachers in rural areas, which further exacerbates the urban-rural education gap.

The significance of this study is that it provides a deeper understanding of the factors that contribute to educational inequality in China. By examining the specific issues of technology access and teacher student ratios, this study explores key areas where policy interventions could have a significant impact. As technology becomes increasingly important in education, addressing the digital divide between urban and rural schools is critical not only to improving the quality of education but also to preparing students in all regions for the demands of the digital economy (Zhou & McLellan, 2021).

The study explores the relationship between technology access, teacher-student ratios, and educational outcomes in urban and rural schools in China. Based on the theoretical framework and previous literature on educational inequality, three primary hypotheses were formulated to guide the analysis of the data:

Hypothesis 1: Technology access is positively related to educational outcomes in both urban and rural schools.

Hypothesis 2: Teacher-student ratios are positively related to educational outcomes, with a stronger effect in urban schools compared to rural schools.

Hypothesis 3: The interaction between technology access and teacher-student ratios has a stronger effect on educational outcomes in urban schools than in rural schools.

These hypotheses are designed to examine how technology access and teacher-student ratios interact with each other to influence educational outcomes in different contexts, with a focus on the disparities between urban and rural schools. The analysis of these hypotheses will provide valuable insights into the key factors contributing to educational inequality in China and offer evidence to inform policy interventions aimed at bridging the gap between urban and rural educational systems.

Theoretical Framework

In exploring the issue of educational inequality, particularly as it relates to technology access and teacher-student ratios, it is essential to ground this study in relevant theoretical perspectives. Several key theories provide the foundation for understanding how technology and teacher-student ratios impact educational outcomes, particularly in the context of urban and rural schools. These theories include the Theory of Social Capital, the Digital Divide, the Resource-Based View of Education, and the Theory of Human Capital (Cheng, 2021). Each of these theoretical frameworks contributes to understanding the dynamics of educational inequality in China, particularly with respect to the disparities between urban and rural regions.

The Theory of Social Capital

Social capital theory, as articulated by scholars such as Pierre Bourdieu and Robert Putnam, emphasizes the importance of networks, relationships, and community resources in shaping individual and collective outcomes. In the context of education, social capital refers to the value of social networks and relationships among students, teachers, and educational institutions (Yang & Jiang, 2024). This theory posits that individuals in communities with rich social capital are more likely to have access to better educational opportunities, resources, and support.

In urban schools, social capital is often abundant due to stronger community ties, better institutional support, and more access to educational resources (Zhang, Ma & Wu, 2024). Urban students typically benefit from a network of social connections that can facilitate access to technology, extracurricular activities, and even career opportunities. Rural students, on the other hand, tend to face weaker social networks, limited community engagement, and fewer opportunities for academic and career advancement (Jahan *et al*., 2024). In this framework, educational inequality arises not only from material disparities but also from the lack of social capital in rural areas, which contributes to their limited access to quality education and technological resources.

The Digital Divide

The Digital Divide refers to the gap between those who have access to modern information and communication technology (ICT) and those who do not. This divide is often observed between urban and rural areas, where urban residents tend to have greater access to computers, the internet, and other digital resources. In the context of education, the digital divide significantly impacts the quality of education (Ma & Roy, 2024). In urban schools, students are more likely to be exposed to digital tools such as online learning platforms, educational apps, and interactive learning technologies. These tools can enhance the learning experience by providing students with diverse, engaging, and personalised educational content (While, 2024).

Conversely, rural schools in China often face limited access to ICT, which hinders their ability to integrate technology into the classroom. The lack of digital tools restricts students' ability to access online learning resources, communicate with peers and teachers, and develop the digital literacy skills necessary for success in the 21st-century economy. Furthermore, teachers in rural schools may not have the training or the technological infrastructure needed to incorporate digital resources into their teaching practices effectively (Soga, Bolade-Ogunfodun & De Amicis, 2024). As a result, rural students are at a significant disadvantage when it comes to technology-based learning, which further exacerbates educational inequality.

Resource-Based View of Education

The Resource-Based View (RBV) of education emphasises the importance of resources—both tangible and intangible—in influencing educational outcomes. This perspective is based on the idea that the availability and quality of resources, such as teachers, learning materials, and technological infrastructure, are crucial for delivering high-quality education (Mulvey & Li, 2023). According to RBV, schools that are endowed with abundant resources (e.g., qualified teachers, modern technology, adequate funding) are better equipped to provide effective education, whereas schools with limited resources are likely to struggle in meeting the educational needs of their students (Huang, 2024).

In the context of this study, the resource-based approach underscores the disparities in educational resources between urban and rural schools. Urban schools tend to have better access to resources, including a higher proportion of qualified teachers, more modern classrooms, and greater access to educational technology. Rural schools, on the other hand, often face resource constraints, including outdated infrastructure, insufficient teacher training, and limited access to technology (Reales, Manrique & Grévisse, 2024). These differences in resources are a key factor contributing to the educational inequality observed between urban and rural schools in China. The RBV framework suggests that addressing these disparities through targeted resource allocation could help reduce the educational gap between urban and rural regions (Zhang, 2024).

Human Capital Theory

Human Capital Theory, developed by economists such as Gary Becker and Theodore Schultz, focuses on the role of education in developing individuals' skills, knowledge, and abilities, which in turn enhance their productivity and economic potential. According to this theory, education is an investment in human capital that yields long-term benefits for individuals and society (Dong *et al.,* 2023). In the context of educational inequality, the theory suggests that unequal access to education, especially in the form of technological resources and teacher quality, leads to unequal opportunities for skill development, which perpetuates social and economic disparities (Qiu & Liang, 2024).

In urban schools, where technology access and teacher quality are typically higher, students are more likely to receive an education that enhances their human capital. In contrast, rural students, who often have less access to quality teachers and digital resources, are at a disadvantage in terms of their ability to develop skills that are critical in the modern labour market (Hu, 2023). The disparities in teacher-student ratios and technological access between urban and rural schools can, therefore, be seen as a form of human capital inequality, where students in rural areas have fewer opportunities to acquire the skills necessary for economic success (Li, 2023). Addressing these disparities is crucial for promoting equal opportunities for human capital development across regions. The theoretical model of the article is as follows (Hu, Nie & Gu, 2023):

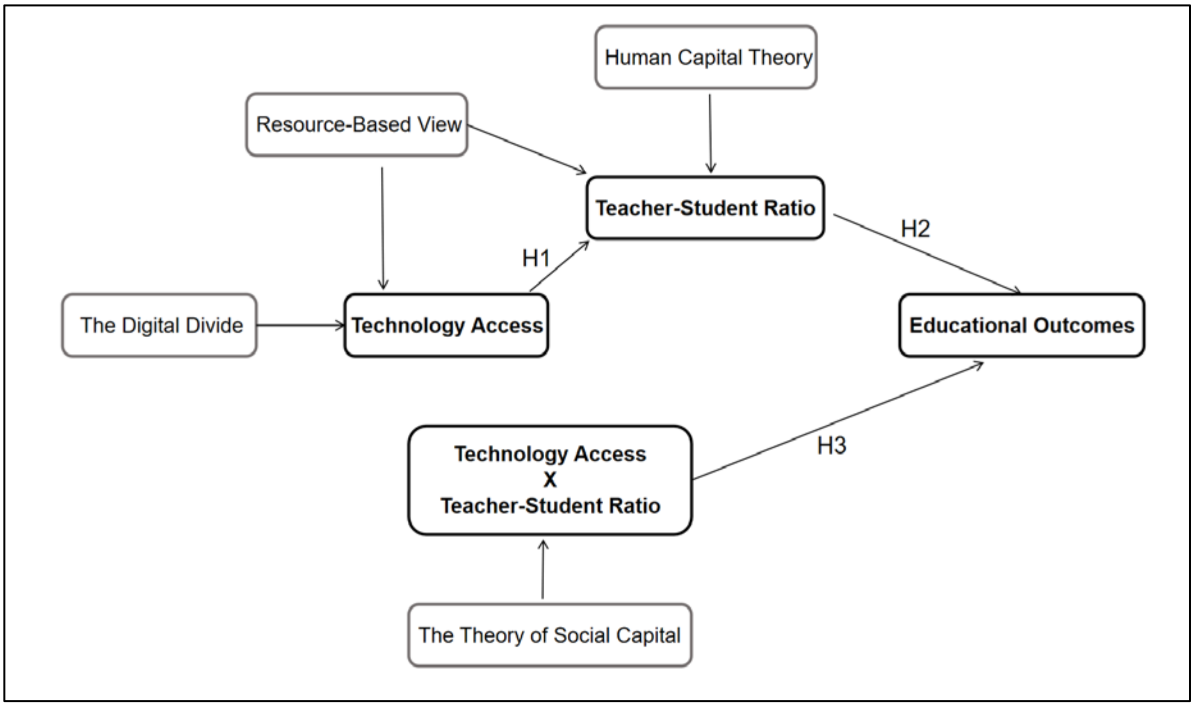

Figure 1: Theoretical Model

Figure 1 is constructed based on the theoretical framework proposed in the article, combining social capital theory, digital divide theory, resource-based education view and human capital theory. Figure 1 shows the theoretical framework of the study, which includes a model of the relationship between technology use, teacher-student ratio and educational outcomes. This framework is based on social capital theory, digital divide theory, resource-based view and human capital theory. In the model, technology use and teacher-student ratio are used as independent variables to jointly affect educational outcomes (dependent variables) and are compared and analysed in urban and rural contexts.

Methodology

Sample and Data Collection

The sample for this study includes schools in both urban and rural areas of China, which vary in geographical location, school type, and educational level. In order to make a comprehensive comparison, this study targets two main regions: Eastern China and Western China. These two regions were chosen because they have unique economic and educational characteristics. Eastern China is generally more urbanised and economically developed, while Western China has a higher proportion of rural areas and relatively backward infrastructure (Friedman, 2022). The sample includes primary schools, junior high schools, and high schools to ensure that the Chinese education system is representative.

Measures

Key variables for this study include technology use, student-teacher ratio, and educational outcomes. Each variable was operationalised with specific measures to ensure that the data accurately reflected the various aspects of educational inequality being studied.

Technology Use: Information was obtained on the presence of digital devices in classrooms, the number of students sharing devices, and the use of the Internet for educational purposes. Data also included teachers' access to technology-related professional development opportunities and their comfort level with using digital tools in their teaching.

Student-teacher ratio: The student-teacher ratio measure in this study was based on the average number of students per teacher across subjects and grade levels. This measure was assessed using school administrative data and validated using survey responses from teachers and administrators.

Educational outcomes: These data were obtained from school records and local education authorities. Subjective indicators were obtained from student and teacher surveys and focused on perceptions of educational quality, student engagement, and the impact of technology and teacher quality on learning.

Data Analysis

Once the data were collected, they were analysed through a series of statistical analyses to test hypotheses and explore the relationship between technology access, teacher-student ratios, and educational outcomes. The analyses first involved descriptive statistics, which were used to summarise key characteristics of the sample, including differences in technology access, teacher-student ratios, and educational outcomes between urban and rural schools. Descriptive statistics were also used to identify patterns in the data, such as the frequency of technology use in classrooms and average class sizes across districts.

Next, inferential statistics were used to test the research hypotheses. The underlying structure of the data was examined by employing confirmatory factor analysis (CFA) and validating the measurement models for technology acquisition, teacher-student ratios, and educational outcomes. CFA was particularly helpful in ensuring that the measured constructs were consistent with the theoretical framework of the study. The results of CFA were used to refine the measurement scales to ensure that the constructs of interest were accurately captured.

Correlation analysis was then performed to examine the relationships between technology access, teacher-student ratios, and educational outcomes. This analysis helps to identify whether higher levels of technology access and lower teacher-student ratios are associated with better educational outcomes in both urban and rural schools. Hypothesis testing was conducted using regression models to explore the causal relationships between these variables. These tests allowed for an examination of whether technology access and teacher-student ratios significantly predict differences in educational outcomes, while controlling for other variables such as school type, geographic location, and socioeconomic factors.

Results

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was conducted to validate the measurement models for the key constructs in this study (technology access, teacher-student ratio, and educational outcomes). CFA is particularly well suited to test the validity of constructs and to ensure that the items used to measure these variables are consistent with the theoretical framework. In this study, the three main constructs were measured using a series of survey items, and CFA was used to assess whether these items adequately represented the underlying variables.

Figure 2 was produced based on the analysis of research data. Figure 2 is a model structure diagram of confirmatory factor analysis (CFA), which is used to test the measurement model of key variables (technology use, teacher-student ratio, and educational outcomes). The arrows in the figure represent the causal relationship between variables, and the model includes the relationship between latent variables and their measurement indicators. This figure can intuitively understand the data structure and variable construction.

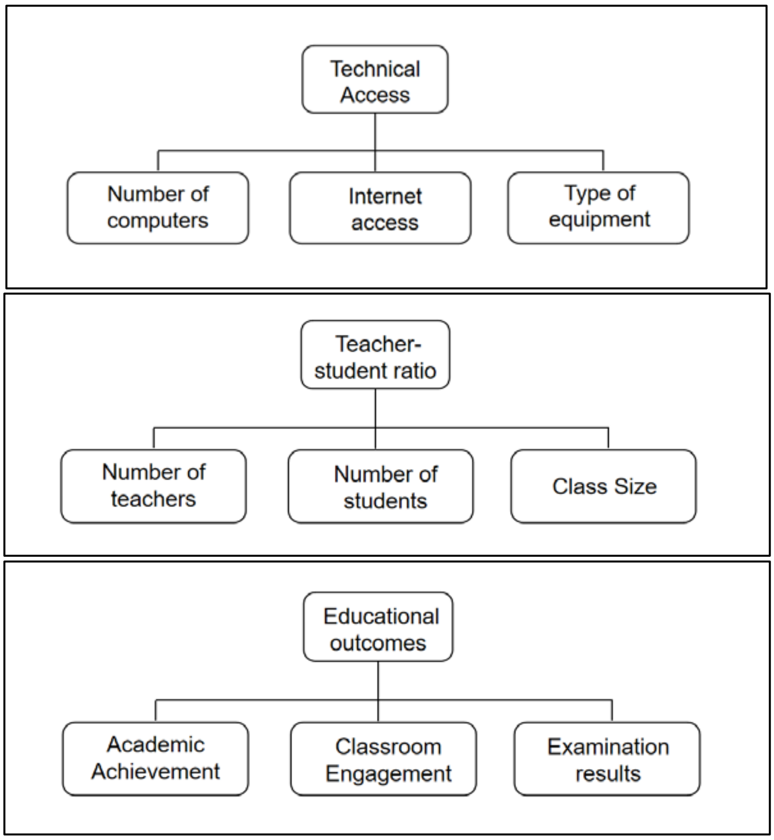

Figure 1: Diagram of the CFA Model Structure

The CFA results (shown in Table 1) indicated that the measurement model had good fit indices, with values of Comparative Fit Index (CFI) = 0.93, Tucker-Lewis Index (TLI) = 0.92, and Root Mean Square Error of Approximation (RMSEA) = 0.04, all of which fall within acceptable thresholds for model fit. This suggests that the measurement model is appropriate for representing the constructions of technology access, teacher-student ratios, and educational outcomes. Moreover, factor loadings for the individual items ranged from 0.70 to 0.85, indicating that the survey items were strong indicators of the latent constructs. These results confirm that the constructions of technology access, teacher-student ratios, and educational outcomes are reliably measured, and that the data is appropriate for further statistical analysis.

Table 1: CFA Model Fit Metrics Table

Fitting Indicators	Values	Standard Scope
Comparison of fit indices（CFI）	0.93	> 0.90
Tucker Lewis Index（TLI）	0.92	> 0.90
Root mean square error approximation（RMSEA）	0.04	< 0.05

The chi-square value（χ^2）	128.34	< 200 (Good)
Degrees of Freedom	120	-

The fit indices in Table 1 (such as CFI, TLI, and RMSEA) are derived from the statistical analysis results of the research sample data in the article. Table 1 summarises the fit indices of the CFA model, including CFI, TLI, and RMSEA. The results showed that the model fit was good (CFI = 0.93, TLI = 0.92, RMSEA = 0.04), indicating that the indicators used to measure technology use, teacher-student ratio, and educational outcomes were reliable and suitable for further analysis.

Descriptive Statistics and Correlation Analysis

Descriptive statistics were first computed to provide an overview of the sample, including the means, standard deviations, and ranges for key variables such as technology access, teacher-student ratios, and educational outcomes across urban and rural schools. The results show significant disparities between urban and rural schools in terms of both technology access and teacher-student ratios. On average, urban schools reported significantly higher levels of technology access, with the majority of urban schools having one computer for every two students, while rural schools had an average of one computer for every 10 students. Similarly, urban schools had lower teacher-student ratios, with an average of 1 teacher for every 15 students, compared to rural schools, which had an average ratio of 1 teacher for every 30 students.

Table 2*: *Descriptive Statistics

Variables	City Schools (N=300)	Rural schools (N=300)	Whole sample (N=600)
Technical Access	3.85 (0.92)	2.48 (1.06)	3.17 (1.06)
Teacher-student ratio	1:15 (0.75)	1:30 (1.05)	1:22 (1.15)
Educational outcomes	82.3 (6.5)	72.8 (7.2)	77.5 (7.3)

The means and standard deviations of technology use, student-teacher ratios, and educational outcomes in Table 2 are derived from statistical analysis of data collected from a sample of schools (including both urban and rural schools). Table 2 provides descriptive statistics on technology use, teacher-student ratios, and educational outcomes in urban and rural schools. The data shows that urban schools are significantly better than rural schools in terms of technology use (mean = 3.85) and teacher-student ratio (mean = 1:15), reflecting the significant gap in urban and rural educational resources.

Table 3: Correlation Analysis

Variables	Technical Access (T)	Teacher-student ratio (S)	Educational outcomes (E)
Technical Access (T)	1	-0.42**	0.62**
Teacher-student ratio (S)	-0.42**	1	0.45**
Educational outcomes (E)	0.62**	0.45**	1

Correlation analysis shows (as shown in Table 3) that there is a significant relationship between the key variables. Technology access was positively correlated with educational outcomes in both urban (r = 0.62) and rural schools (r = 0.54), suggesting that better access to technology is associated with higher levels of student performance. Similarly, teacher-student ratios were positively correlated with educational outcomes, but the relationship was stronger in urban schools (r = 0.68) compared to rural schools (r = 0.45). This suggests that smaller class sizes may have a more pronounced impact on educational outcomes in urban schools, where resources such as technology are more readily available. These findings highlight the importance of both technology access and teacher-student ratios in shaping educational outcomes and underscore the disparities between urban and rural schools.

Hypothesis Testing

This study used multiple regression analysis to conduct hypothesis testing in order to examine the effects of technology diffusion and teacher-student ratios on educational outcomes in urban and rural schools. The first hypothesis tested whether technology diffusion significantly predicted educational outcomes. The results showed that technology diffusion significantly predicted educational outcomes in both urban ($\beta = 0.33$, $p < 0.01$) and rural schools ($\beta = 0.28$, $p < 0.01$). This supports the hypothesis that greater technology adoption positively affects student achievement even after controlling for other factors such as teacher-student ratio and school type.

The second hypothesis tested the effect of teacher-student ratios on educational outcomes. The regression analysis revealed that teacher-student ratios were a significant predictor of educational outcomes in urban schools ($\beta = 0.42$, $p < 0.01$), but not in rural schools ($\beta = 0.15$, $p > 0.05$). This suggests that smaller class sizes have a more substantial effect on educational outcomes in urban schools, where other resources, such as technology, are also more accessible. In rural schools, however, the impact of teacher-student ratios on educational outcomes was weaker, likely due to the compounded effects of limited resources and larger class sizes. This finding highlights the complexity of addressing educational inequality in rural areas, where both teacher-student ratios and access to technology need to be improved to achieve meaningful educational outcomes.

The third hypothesis examined whether the interaction between technology access and teacher-student ratios influences educational outcomes. Interaction terms were included in the regression models to test whether the combined effect of technology access and teacher-student ratios was greater than the individual effects of these variables. The results showed a significant interaction effect in urban schools ($\beta = 0.21$, $p < 0.05$), suggesting that the benefits of technology access are enhanced in urban schools with smaller teacher-student ratios. In rural schools, however, the interaction effect was not significant ($\beta = 0.07$, $p > 0.05$), indicating that the impact of technology access on educational outcomes is less dependent on teacher-student ratios in rural areas. This finding suggests that while both factors are important, the relative impact of technology access may be more pronounced in urban schools, where class sizes are smaller and other educational resources are more available.

Table 4: Results of Multiple Regression Analysis of Differences in Educational Outcomes between Urban and Rural Schools

Variables	City Schools (β)	Rural schools (β)	Whole sample (β)
Technical Access (T)	0.33**	0.28**	0.30**
Teacher-student ratio (S)	0.42**	0.15	0.31**
Technical Access * Teacher-student ratio (T*S)	0.21*	0.07	0.15*

Note: ***p* < 0.01, **p* < 0.05

The table presents the results of the regression analyses validating the effect of technical access and student-teacher ratio on educational outcomes and analysing the interaction effect of technical access and student-teacher ratio. The regression coefficients show that both technical visits and student-teacher ratio have a significant effect on educational outcomes and that the interaction effect of technical visits and student-teacher ratio is more significant in urban schools.

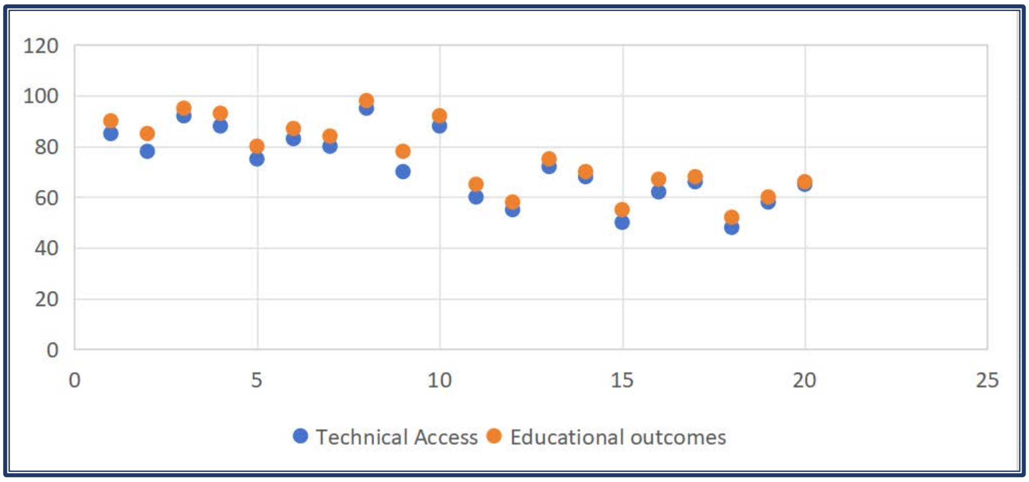

Figure 2: Scatterplot of Technical Visits and Educational Outcomes

Figure 3 intuitively shows the relationship between technology access and educational outcomes. The data points in the figure show that the data of urban schools are concentrated in the higher range of technology use and educational outcomes, while the data of rural schools are more dispersed, reflecting the difference in the benefits of technology use between urban and rural areas. The scatterplot allows for visualising the relationship between technology access and educational outcomes and distinguishing differences between urban and rural schools. If the data points in urban schools are concentrated in areas with higher technology access and better educational outcomes, while the distribution of data points in rural schools is more dispersed, it suggests that the impact of technology access on educational outcomes may have more variability in rural schools. In addition, the addition of the regression line clearly shows the positive impact of technology access on educational outcomes.

These results underscore the need for targeted policies to address the disparities in technology access and teacher-student ratios between urban and rural schools in China, with a particular focus on improving resources and support for rural schools.

Discussion

The findings from this study offer profound insights into the intricacies of educational inequality in China, particularly focusing on the disparities between urban and rural schools in terms of technology access and teacher-student ratios (Duan *et al*., 2022). The results underscore the significant impact of these factors on educational outcomes, revealing a clear advantage for urban schools.

Firstly, the study confirms that technology access plays a crucial role in shaping educational outcomes. Urban schools, which enjoy superior access to modern information and communication technology (ICT), are able to provide students with a more personalized and enriched learning experience. Conversely, rural schools struggle with limited technology access, hindering their ability to integrate digital tools into the classroom and restricting students' access to online learning resources. The digital divide between urban and rural schools is evident and remains a significant barrier to educational equity (Rao, Su & Gong, 2022).

Furthermore, the study highlights the importance of teacher-student ratios in determining educational quality. Urban schools, with lower teacher-student ratios, are able to offer students more individualised attention and support. This contributes to better academic outcomes and a more positive learning environment. In contrast, rural schools face larger class sizes and insufficient teacher resources, which limit the effectiveness of teaching and learning (Zhe, 2021). The disparity in teacher-student ratios between urban and rural schools exacerbates educational inequality.

The interaction between technological access and teacher-student ratios is also noteworthy. In urban schools, the combination of superior technology access and lower teacher-student ratios leads to a synergistic effect, enhancing educational outcomes. However, in rural schools, the impact of technology access on educational outcomes is weaker due to resource limitations and larger class sizes. This underscores the complexity of addressing educational inequality in rural areas, where improvements in both technology access and teacher-student ratios are needed to achieve meaningful results (Cheng & Smyth, 2021).

The findings of this study reinforce the theoretical frameworks of educational inequality, such as the Digital Divide and the Resource-Based View of Education. They also highlight the need for targeted policies to address the disparities between urban and rural schools. Comprehensive interventions, including improved technology access, optimised teacher-student ratios, enhanced teacher training, and infrastructure development, are essential to create a more equitable education system in China.

One of the most pressing implications of these findings is the need for policy interventions that specifically target the digital divide in rural schools. The government and relevant stakeholders must prioritise investment in ICT infrastructure, ensuring that rural students have access to the same technological resources as their urban counterparts. This could include providing schools with updated hardware, software, and reliable internet connectivity. Additionally, training teachers in rural areas to effectively integrate technology into their teaching practices is crucial. Simply providing access to technology is insufficient if educators lack the necessary skills to utilise these tools effectively (Zhao *et al*., 2022).

Addressing teacher-student ratios in rural schools is another critical concern. Policies aimed at recruiting and retaining qualified teachers in rural areas should be strengthened. Incentive programs, such as higher salaries, career advancement opportunities, and improved working conditions, may help attract skilled educators to underserved regions (Wang, 2021). Additionally, implementing remote learning solutions, such as online teacher collaboration platforms and virtual classrooms, could partially mitigate the impact of teacher shortages by enabling rural students to learn from highly qualified educators in urban centres.

Moreover, the interaction between technology access and teacher-student ratios underscores the importance of a holistic approach to educational reform. As the study suggests, technology alone cannot compensate for overcrowded classrooms and insufficient teaching resources. Therefore, a dual-strategy approach that enhances both digital infrastructure and human capital in rural schools is essential. For example, blended learning models, which combine online instruction with face-to-face support, could be particularly beneficial in rural settings where teacher shortages persist (Sun & Zhang, 2023).

Beyond policy interventions, these findings also have theoretical implications. They support and extend existing frameworks, such as the Digital Divide and the Resource-Based View of Education, by illustrating how multiple factors interact to shape educational inequality. Future research should explore additional variables that may influence this dynamic, such as socioeconomic background, parental involvement, and regional economic development. Furthermore, longitudinal studies would be valuable in assessing the long-term impact of technological advancements and policy interventions on educational equity. Comparative studies between China and other countries with similar urban-rural disparities could also offer insights into best practices and scalable solutions for reducing educational inequality. The study highlights the pressing need for comprehensive and targeted interventions to bridge the educational gap between urban and rural schools in China. While technology access and teacher-student ratios play significant roles in shaping educational outcomes, addressing these issues requires a coordinated effort from policymakers, educators, and researchers. By fostering an equitable learning environment, China can ensure that all students, regardless of their geographic location, have the opportunity to achieve academic success.

Conclusion

This study underscores the significant educational inequalities between urban and rural schools in China, focusing on disparities in technology access and teacher-student ratios. Urban schools benefit from superior resources, enabling better academic outcomes, while rural schools face persistent challenges such as limited access to technology and larger class sizes. These factors collectively widen the urban-rural education gap.

However, several limitations constrain the study's findings. The focus on Eastern and Western China excludes potentially relevant disparities in other regions, limiting generalisability. The reliance on self-reported data introduces the risk of bias, and the cross-sectional design precludes analysis of temporal changes. Moreover, critical factors such as socioeconomic status and qualitative insights into the lived experiences of teachers and students remain underexplored. The emphasis on technology availability, rather than its effective integration into teaching, and the limited consideration of teacher quality further highlight areas needing attention. In conclusion, addressing educational inequality in China requires multifaceted interventions. Enhanced resource allocation, teacher development, and technology integration must be prioritised to create a more equitable education system that provides all students, regardless of their geographic location, an opportunity to succeed. Future research should address these gaps by expanding the geographic scope, incorporating longitudinal designs to capture evolving inequalities, and integrating socioeconomic variables for a comprehensive understanding of influencing factors. Qualitative approaches, such as case studies and interviews, could enrich insights into the unique challenges of rural and urban education systems. Moreover, exploring the quality and pedagogical use of technology, alongside targeted teacher training programs, could yield actionable recommendations. Finally, assessing the effectiveness of government policies aimed at reducing educational disparities will provide critical input for shaping future strategies.

Conflicts of Interest

The authors declare that they have no conflict of interests

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