Education Journal
2024, Vol. 13, No. 5, pp. 284-293
https://doi.org/10.11648/j.edu.20241305.15

Research Article

The Impact of New Media Technology Applications on Educational Equity in Rural Areas

Qian Xu *

School of Education, Johns Hopkins University, Baltimore, United States

Abstract

Educational disparities between rural and urban areas have long been a significant concern, driven by factors such as limited access to educational resources, insufficient infrastructure, and a lack of qualified teachers in rural regions. In response to these challenges, new media technologies (NMT)—ranging from digital learning platforms to artificial intelligence(AI)-driven educational environments—have emerged as promising tools to bridge the educational gap. This research explores the impact of these NMT applications on educational equity in rural areas, emphasizing both the opportunities they create and the challenges they introduce. These technologies have the potential to revolutionize traditional educational methods by providing innovative approaches to knowledge transfer and expanding access to a broader range of educational resources. However, the digital divide—a disparity in access to technology and digital literacy—remains a significant obstacle. Students in rural areas often face challenges such as limited digital literacy, insufficient access to technological equipment, and unreliable Internet connections, all of which exacerbate educational inequalities. This research advocates for targeted investments in Internet infrastructure and comprehensive digital training programs to mitigate these challenges and promote educational equity. By delving into the complexities of integrating NMT into rural education, this study aims to offer valuable insights for policymakers and educators in their efforts to develop inclusive strategies that ensure equitable access to quality education for all students, regardless of their geographic location. The ultimate objective is to create an education system that empowers students in rural and disadvantaged communities to reach their full academic potential.

Keywords

Educational Equity, New Media Technologies, Digital Divide, Rural Education, Online Learning, Internet Infrastructure, Policy Recommendations

1. Introduction

In recent years, the rapid development of new media technologies (NMT) has changed all aspects of human life to a certain extent. The integration of NMT, such as digital platforms and online learning environments advanced by artificial intelligence (AI), has crossed the boundaries of traditional education methods, revolutionized the way of knowledge transfer and acquisition, and allowed students and educators to break through the boring traditional teaching mode, making classroom teaching more convenient and innovative.

Nowadays, NMT are gradually popularized in educational institutions around the world. Online learning platforms are

*Corresponding author: qianxu2002@gmail.com (Qian Xu)

Received: 30 August 2024; **Accepted:** 18 September 2024; **Published:** 29 September 2024

enabling millions of learners to access high-quality and efficient education anytime, anywhere. Educational institutions are increasingly adopting these tools to facilitate online courses, virtual classrooms and resource-sharing platforms. However, while the use of these NMT has led to innovative educational models for educators and students, it has also resulted in challenges to the equity of education in rural areas.

Lynch & Baker (2005) define equity in education as strategies to ensure that all students have equal access to opportunities and support in the learning process through the equitable distribution of educational and related resources in policy and practice, especially the promotion of socioeconomic equity [1]. Equity in education removes barriers to learning for marginalized students and enables students from disadvantaged and rural areas to achieve their academic potential. Achieving equity in education is important for social development, and it is only with relative equity in education that every student and educator can have an equal opportunity to succeed and make a positive contribution to society and the nation.

This research will examine the impact of NMT applications on educational equity in rural areas. The proper application of NMT is essential to promote educational equity in rural areas. First, to discuss the problems of education in rural areas and the impact of NMT on education in rural areas. Second, it is advocated that governments and educational institutions should invest more in Internet infrastructure to ensure that all students can conveniently use and access online educational resources. Finally, on the basis of a comprehensive consideration of the inadequacies of existing policies in response to educational inequality and the lack of educational resources in rural areas, policies will be proposed to promote the progress and development of education in rural areas in an effort to eliminate educational inequality. For the problem of educational inequality in rural areas caused by the digital divide, researchers need to pay special attention to the impact on students in rural areas. By revealing the challenges and impacts of NMT when used in rural areas, it provides educational policy makers and educators with help for future endeavors. The significance of the research is to help bridge the digital divide and ensure that all students, regardless of their geographic location or background, have equal access to quality educational resources.

2. Rural Education

In the United States, despite their potential and talents, students in rural areas face significant disparities in educational opportunities due to geographic disadvantages. A complex interplay of multiple facets of society combine to perpetuate inequality and impede educational progress in rural areas. As Hedlund (2021) points out, rural students fail to enjoy the same educational opportunities and privileges as their urban counterparts due to geographic disparities [2]. This exemplifies the digital divide in education in rural America. In rural areas, a combination of geographic isolation and economic challenges hinders students' academic achievement and inhibits social mobility.

2.1. Educational Issues in Rural Areas

First, the economic base of rural areas has a huge impact on educational inequity. According to the U.S. Department of Agriculture (USDA) (2021), while higher levels of education increase incomes, this effect is more pronounced in urban areas, making income disparities due to lower educational attainment more pronounced in rural areas [3]. This income gap further exacerbates poverty in rural communities and widens the urban-rural economic gap. Lack of funding leads to a lack of diversity in educational digital resources in rural schools to meet the needs of diverse students. As noted by Drescher & Torrance (2022), rural schools face difficulties in providing support for programs for gifted and talented students, and extracurricular activities are less common in rural areas [4]. The lack of enrichment opportunities can hinder rural students and limit their academic development. However, while urban students have easy access to information media, rural students often lack such access, hindering their exposure to diverse learning experiences.

Second, the shortage of educational resources in rural areas exacerbates educational inequities. According to Goldberg (2024), many rural high schools are unable to hire experienced college counselors due to a lack of funding, making it difficult for students to attend top universities [5]. This economic disparity not only affects access to educational resources, but also the overall well-being and academic performance of students. Economic backwardness often prevents rural areas from having the necessary funds to hire professional and qualified teachers to teach Advanced Placement (AP) courses and provide educational opportunities for future students who want to pursue better credentials. As Goldberg (2024) emphasized, teachers who are qualified to teach AP courses are often reluctant to teach in these rural communities [5]. Shortages in funding, equipment resources, and faculty further limit the opportunities for rural students to pursue higher education in urban areas. Many rural schools struggle to afford the new media teaching tools, lab equipment, and online library resources needed for a well-rounded education. Without these resources, rural students may be at a disadvantage when applying to urban colleges and universities, which expect applicants to have access to advanced technology and facilities. The persistence of this inequality undermines efforts to promote social mobility and economic development in rural communities and exacerbates existing patterns of disadvantage and marginalization.

Third, rural students are often overlooked and undervalued because of their geographic location. The consequences of these disparities are far-reaching. As Goldberg (2024) aptly points out, young people in these areas are often overlooked and undervalued because of their geographic location, which

is patently unfair [5]. The systemic challenges and social injustices faced by rural students are such that their potential and aspirations are often overshadowed by prevailing prejudices. Neglecting and undervaluing rural students based on their geographic location leads to the perpetuation of systemic inequalities that stifle individual potential. It is a form of injustice that undermines the principles of equity and opportunity upon which our education system is built.

2.2. The Impact of New Media Technologies in Education in Rural Areas

In recent years, NMT have been widely used in education in rural areas. Weerasena& Jayathilaka (2023) mentioned that e-learning has become a popular and effective way of learning due to the COVID-19 epidemic that led to the closure of schools worldwide [6]. Through online learning platforms, students in rural areas can receive quality educational resources from around the globe across geographic and time constraints. Findings from a study by Means et al. (2010) showed that student learning outcomes in e-learning courses, either fully online or in blended format, were on average better than those in courses with only face-to-face instruction [7]. Ng, S.-C. et al. (2012) suggested that teaching in online classrooms and mobile learning applications also provides students with a flexible learning environment that allows them to actively and effectively participate in the classroom [8]. Stenman& Pettersson (2020) also mentioned that distance learning can extend the learning environment for students by providing not only qualified teachers but also broadening the channels of learning and communication [9].

In rural areas the combination of face-to-face teaching and the use of NMT allows students to learn more effectively and conveniently. Bullen (2007) argues that information and communication technologies (ICT) can benefit those who are already involved in formal lifelong learning [10]. A study by Kilpeläinen et al. (2011) demonstrates that students in rural areas particularly enjoy the flexibility of time scheduling in blended learning, and that such self-directed learning is not only possible but is also a way for them to learn in their own time [11]. This type of self-directed learning is considered more convenient and valuable than traditional long face-to-face courses.

Despite the advantages of NMT in expanding educational opportunities, there are also some negative consequences. Despite the advantages of NMT in expanding educational opportunities, there are also some negative consequences. The use of NMT can be highly inequitable for students who lack the necessary digital literacy skills or access to technological devices and reliable Internet connections. Jan A. G. M. van Dijk (2006) defines the digital divide as the gap between individuals who have new types of information technology and those who do not [12]. This is a major obstacle to achieving true educational equity. It will result in rural areas where underdeveloped new media infrastructures and limited access to technology result in only a privileged few benefiting from the advantages of NMT.

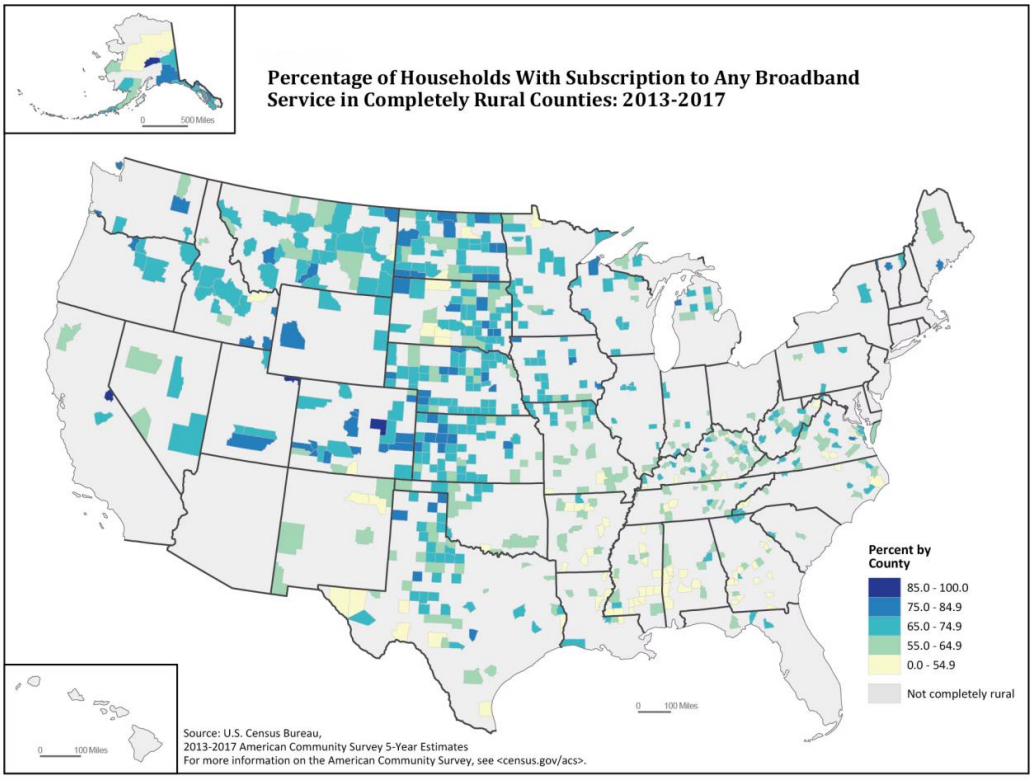

Figure 1. *Percentage of Households With Subscription to Any Broadband Service in Completely Rural Counties: 2013-2017 [15].*

First, many rural areas lack the necessary new media infrastructure. Graves et al. (2021) found that approximately 18% of rural students lacked broadband or smartphone data access, compared to 10% of urban students; furthermore, 36% of rural students could not afford broadband, compared to 28% of urban students [13]. Hampton et al. (2020) also found that 64% of students without home Internet access often cannot complete assignments due to a lack of Internet or computers, compared to only 17% with high-speed Internet [14]. This infrastructure imbalance exacerbates unequal access to educational resources. Figure 1 shows the percentage of households with subscription to any broadband service in completely rural counties: 2013- 2017.

Second, the use of NMT requires students and teachers to be digitally literate, but residents of rural areas often lack the necessary training and experience. This leads to the fact that students may experience difficulties in using new media for learning and are unable to fully utilize the advantages that these technologies offer. At the same time, teachers may also face challenges in utilizing new media for teaching and learning, which further affects the quality of education. Weerasena& Jayathilaka (2023) suggested that such things as students' negative attitudes towards technology, low perceived usefulness, and weak awareness lead to limited effectiveness of the use of new media in education [6]. Harris et al. (2009) also suggested that in educators' professional development needs to intentionally foster the use of new media in conjunction with face-to-face instructional situations to achieve better teaching and learning outcomes [16].

Table 1 summarizes rural education issues, including specific manifestations of current educational inequities.

Table 1. *Rural Education Issues.*

Issue	Description
Geographic isolation and economic challenges	Hinder students' academic achievement and social mobility
The influence of economic basis on educational inequity	Less educated rural areas lead to greater income disparities, exacerbating community poverty
The shortage of educational resources	Lack of funding limits investment in educational resources, resulting in insufficient diversity of resources
Geographic neglect and underestimation	Students face systematic injustice, which is overlooked and undervalued
New media infrastructure is lacking	Lack the necessary broadband or equipment to take full advantage of NMT
Lack of digital literacy and technical training	Students and teachers lack the necessary digital literacy training, which affects the teaching effect of new media

3. Alternative Policies and Analysis

With the rapid development of NMT, the field of education in rural areas has undergone profound changes. By presenting and analyzing policies, it is hoped that they will inform educational policymakers and relevant stakeholders to ensure that every student, regardless of his or her geographical location, has equal access to quality educational resources.

3.1. Policy 1: Digital Expansion Initiative: Ensuring Online Education Access in Rural Areas

In rural areas, Internet penetration has a direct impact on the equity of students' access to educational resources and their academic achievement. Governments and educational institutions should appropriately increase investment in new media infrastructure to ensure that all students can easily use and access online educational resources.

High-speed Internet coverage should be established in rural areas and students should be provided with computers or tablet devices to ensure that they can participate in online learning. Providing network and technical support can enable students to find educational resources across geographical boundaries, support rural students' learning and make up for educational backwardness in poor areas. The use of the Internet and electronic devices can help rural students access the same learning resources and information as their urban counterparts, thereby narrowing the urban-rural education gap. Such access provides them with a wide range of learning materials, online courses and other educational tools that enable them to access a richer academic world. In many rural areas, quality teachers are scarce. Through online education, students in these areas have access to excellent teachers and educational resources, both urban and international, thus bridging the gap in local educational resources.

In terms of efficiency, the advantage of the online education guarantee policy in rural areas is that the Digital Outreach Program provides students in rural areas with more educational resources through online education, which can improve the coverage and efficiency of education. This online education allows students to access learning resources anytime and anywhere, thus increasing the efficiency of teaching and learning. In terms of cost, digital outreach programs are beneficial in reducing the cost of classroom facilities and teaching materials compared to traditional methods of education. Online education can be more cost-effective by reducing costs through shared resources and self-directed learning, especially for rural areas with relatively low investment in educational resources. In terms of equity, digital extension programs can compensate for the lack of educational resources in rural areas by providing online education. Both urban and rural students can access the same learning opportunities through the Internet. Such equal opportunities can help narrow the gap between urban and rural education and enable rural students to enjoy advanced educational resources.

First of all, the government and educational institutions should strengthen investment in and maintenance of Internet infrastructure, which is the key to realizing new media education. With the widespread use of online learning and distance education, students are increasingly relying on the Internet to access more learning resources. In rural areas, the quality and speed of Internet connections are still inadequate, which limits students' learning. The government should prioritize investment in building Internet infrastructure in rural areas. By expanding the coverage of broadband networks and improving network speed and stability, it can ensure that every educational institution and household has access to a reliable and high-speed Internet connection. Governments can attract telecommunication companies and Internet service providers to invest and build network infrastructure in rural areas by providing financial incentives or tax breaks.

Second, investing in Internet infrastructure not only increases learning resources for students in rural areas, but also helps to boost economic development. A study by Jiménez et al. (2014) shows that there is a positive correlation between Internet access and economic growth, and that Internet investment in education fosters more human resources [17]. The prerequisite and basic for all economic growth and regional development is positive development and investment in education. Increased Internet access can significantly improve the quality of education, which in turn increases the skill level and productivity of the working population. By improving Internet infrastructure in rural areas, Governments can provide the basis for long-term social progress.

In addition, improved Internet infrastructure can personalize and differentiate instruction for different students and promote equity. The spread of mobile learning platforms in rural areas is also part of improving Internet infrastructure. The development and application of learning apps for mobile devices can provide more students with anytime, anywhere learning opportunities. The use of Internet-connected online learning platforms can provide personalized learning paths and resources based on students' learning behaviors and progress through big data and AI technologies. A personalized teaching model enables students in rural areas to access their individual learning needs and helps them master knowledge at a pace that suits them. For rural areas that lack teacher resources, online education platforms can give students more convenient and high-quality educational resources. Providing a platform for students to learn at their own pace can increase motivation and promote equitable education.

Collaboration between governments and educational institutions is essential to promote the development of Internet infrastructure. Governments should formulate policies and provide financial and technical support to ensure that students and educators in rural and economically underdeveloped areas have access to stable and high-speed Internet connections. Educational institutions, for their part, should be actively involved in ensuring that teachers and students can fully utilize these resources for teaching and learning. In addition, the success of education depends not only on the construction of hardware facilities, but also on the need for the Government to strengthen the technical training of teachers and students, so as to equip them with the necessary skills and knowledge of how to use them. This will truly help to narrow the education gap and achieve equality in education.

3.2. Policy 2: Rural Educational Development Program: Empowering Teachers

The involvement of communities and educators is essential to address the lack of resources and equity in rural education. In order to effectively utilize NMT, more rural educators should be added, trained, and qualified in the use of NMT. Increase the pool of rural educators and improve the quality of rural educators in the use of new media. Promote each poor region to establish its own teacher selection system that is suitable for each poor region based on the level of local students, regional culture and local needs, and provide technical training for these teachers to promote better technical support for local students.

At the same time, these teachers should receive specialized technical training to improve their ability to use NMT in teaching. This technical training should cover not only basic digital literacy education, but also how to integrate NMT into actual teaching programs. Teachers who have in-depth knowledge of their students' backgrounds and community environments are able to use NMT more effectively to design individualized instructional programs that meet the needs of their students. Locally selected teachers are more likely to understand and integrate into the culture of the local community, which helps build trust and respect between students and teachers. Teachers with a deeper understanding of their students' backgrounds and community environments are more effective in using new media to design instructional programs

that meet students' needs.

Local teachers tend to have stronger connections to their students' families and community members. This connection fosters a favorable educational ecosystem by promoting family and community support and engagement with educational resources in new media. Such connections allow teachers to better understand their students' home environments and use this understanding to enhance family and community support and engagement with educational resources in new media. For example, local teachers can popularize the use and importance of NMT among students' parents through home visits or community activities, thereby encouraging families to become more involved in their children's education.

By giving communities more decision-making power, they can formulate and implement education development strategies according to their actual needs. Through community education committees or similar organizations, residents in rural areas can directly participate in the management and planning of educational institutions, thus ensuring that educational resources are allocated in a way that better meets actual local needs. Enhance the sense of responsibility and commitment of communities and educators to educational development. The active participation of community members will provide important feedback and support for the allocation of educational resources, ensuring that every policy is effectively implemented.

In terms of efficiency, the policy can improve the overall efficiency of the ET system. More educational resources mean more individualized attention and instruction, which can improve student learning success. In addition, increasing teachers' competence in the use of NMT can improve the quality of teaching, with enough ability to design lesson plans that meet students' needs and improve student learning. As far as cost is concerned, although such a policy requires technology cost investment, it is a long-term investment. High-quality new media education resources can cultivate more talents for the society and improve the overall level of human capital, which in turn promotes the development of the economy. From the perspective of equity, increasing the number of new media is conducive to the fair distribution of educational resources. Teachers using new media platforms to provide students with better teaching quality ensure that each student receives more attention and personalized guidance. This will reduce the inequity brought about by unequal educational resources.

3.3. Policy 3: Community-Based (AI) Academic Support and Tutoring Services Policy

The Community-Based AI Academic Support and Tutoring Services Policy is designed to promote the establishment of diverse academic technology support organizations within a school or community to provide students with technology tutoring and support services in a wide range of disciplines. These organizations will be comprised of educational specialists, technology consultants, and volunteers who will help students achieve higher levels of success in a variety of disciplines through individualized tutoring services, particularly Advanced Placement online courses designed for high school students to help them better prepare for college entrance exams. The core objective of the policy is to enhance students' academic ability and promote educational equity, while providing students with more comprehensive academic support services through collaboration among schools, communities and other educational institutions to share resources and maximize their respective strengths.

In terms of specific measures, the policy proposes the establishment of libraries and academic and technical counseling departments in rural areas to provide students with textbooks, reference books and other learning resources to address the shortage of offline teaching materials. Libraries can also serve as centers for students to study on their own and access academic support, expanding their learning opportunities through e-libraries and online resources. The policy also emphasizes the importance of personalized tutoring, where students can receive tailor-made tutoring plans according to their learning needs, either face-to-face or online, and learn at their own pace, making full use of community resources to enhance their academic abilities.

In addition, the policy also focuses on the balance between cost and efficiency. By mobilizing the participation of volunteers, retired teachers and university students in the community, the implementation cost of the policy will be greatly reduced, and at the same time, the sense of participation of community members can be enhanced. The accessibility of community-based academic support organizations makes it convenient for students to get academic help at their doorsteps. The low-cost and efficient nature of these services, which are particularly suitable for districts with limited funding, helps maximize the use of limited resources and ensures that economically disadvantaged students, as well as other special groups, have equal access to academic support.

Overall, the policy on community-based academic support and counseling services will not only significantly enhance students' academic performance and boost their self-confidence and learning motivation, but will also create a positive learning atmosphere in the community at large. Through the provision of comprehensive academic support, the policy will nurture more outstanding talents for the community, while at the same time promoting the development of educational equity, building a more just and inclusive society, and fostering long-term social stability and development.

3.4. Policy 4: Welfare Improvement Scheme for Educators in Rural Areas

This policy aims to provide better benefits and incentives for educators working in rural areas to improve their job satisfaction and retention rates, thereby contributing to the stable

development of rural education. The policy helps educators cope with the additional costs of living and working in rural areas by providing additional housing and transportation subsidies. At the same time, in order to attract and retain education talents, the policy also introduces a laddering benefit system that provides different levels of benefits to educators according to their years of service or performance level, so as to ensure that they are continuously motivated and rewarded at all stages of their career.

Specifically, the policy provides educators with basic benefits, such as housing subsidies and training resources, at the initial stage. These basic benefits can help educators alleviate financial pressures and access more professional development opportunities. Over time, or when educators achieve excellent performance in a particular area, the policy will gradually add more benefits, such as additional vacation days, family support services and higher salary levels. This system of gradually increasing benefits will not only incentive educators to stay in the rural areas for a long period of time to engage in education, but also ensure that they can feel cared for and supported by the policy at all stages of their career, thus enhancing their job satisfaction and sense of belonging.

In terms of efficiency, by providing better welfare benefits, such as housing subsidies, transportation subsidies and training opportunities, the government not only attracts more educators to work in rural areas, but also effectively fills the gap of insufficient educational resources in rural areas. In this way, the policy has improved the coverage and quality of rural education, enabling more students to receive quality education. In addition, a stable team of educators can reduce the training and recruitment costs arising from staff turnover, which will bring about significant cost savings in the long run. A stable team not only improves the quality of teaching, but also lays the foundation for the long-term development of the school and reduces the wastage of education resources.

From the perspective of equity, the policy helps promote a balanced allocation of rural education resources. By attracting more outstanding educators to work in rural areas, the policy improves the quality of education in rural areas and brings more learning opportunities to students. This has not only narrowed the gap between urban and rural education, but also enhanced educational equity, ensuring that rural students have access to the same quality of educational resources as their urban counterparts. By improving the welfare and working environment of educators, the policy has injected new vitality into rural areas, promoted the quality of education, and provided human resources for the long-term development of rural areas.

4. Confront the Trade-offs and Decide

By analyzing and evaluating the above four policy options and considering their pros and cons, I believe that providing new media for rural areas is the best choice. On the one hand, online education facilitates students in rural areas to have access to quality educational opportunities, thus promoting educational equity. According to Hobbs (2004), all distance learning technologies offer the opportunity for curriculum enhancement, advanced classes, and the opportunity for students to participate in classes that do not have a locally available certified teacher [18]. Online education It is conducive to promoting the balanced allocation of rural educational resources. Rural areas often face problems such as lack of educational resources, small school size, and difficulties in recruiting teachers, and traditional education models may not be able to meet students' needs. Through network education, students can obtain the same level of educational resources as those in cities through the Internet without the restriction of geographical location, which helps to make up for the lack of educational resources in rural areas and improve the fairness and accessibility of education.

On the other hand, online education is conducive to improving the learning effectiveness and efficiency of students in rural areas. According to Hobbs (2004), distance learning technologies can be just as effective in terms of student performance as traditional classroom instruction and student (and instructor) satisfaction can be very high. Due to poor transportation in rural areas, students may have to walk for a long time to reach the school [18]. This reduces the efficiency of learning. With online education, students can learn from home via the Internet, which saves students time and costs by avoiding long trips and extra expenses. In addition, students in rural areas may come from different family backgrounds and learning environments. Online education provides personalized learning opportunities for students, who can adjust their learning pace to acquire knowledge at a pace that suits them. In addition, online education platforms usually provide rich and diverse learning resources and learning methods, including text, pictures, video, audio and other forms. Students can choose their own learning resources and learning methods according to their own learning preferences and learning styles so as to learn knowledge more effectively.

5. Discussion

Researchers should have reasonable expectations for the implementation of the policy. Although previous studies have extensively documented the educational disparities between urban and rural areas, particularly due to geographic and socioeconomic factors, there is a noticeable gap in research concerning the role of NMT in addressing these disparities. Such as that by Hedlund (2021), highlights the challenges rural students face, including limited resources and a shortage of qualified teachers, the potential of NMT to bridge these gaps has not been thoroughly explored [2]. Specifically, the literature lacks comprehensive studies on the effectiveness of NMT in reducing educational inequities in rural areas.

By providing access to a wider range of educational resources and opportunities through NMT, as supported by Stenman & Pettersson (2020), this policy could significantly

mitigate the geographic barriers that have historically limited rural students' educational prospects [9]. Unlike prior studies that have primarily concentrated on traditional educational resources, this research emphasizes the transformative potential of digital platforms and online learning environments.

Moreover, while research by Lynch & Baker (2005) underscores the importance of educational equity in fostering social mobility, the intersection of NMT and educational equity remains underexplored [1]. This study contributes to the field by demonstrating how equitable access to NMT can level the educational playing field between urban and rural students, potentially narrowing the urban-rural divide in educational outcomes.

Additionally, the study explores the impact of NMT on the quality of education in rural areas, building on the work of Ng S.-C. et al. (2012), who found that integrating online resources and high-quality instructional materials can enhance academic performance and student engagement [8]. The current research extends this understanding by evaluating how NMT specifically improves the educational experiences of students in rural settings, thus contributing novel insights to the field.

In terms of policy effectiveness, this study also addresses a critical gap in the literature by proposing a systematic approach to evaluating the outcomes of NMT-based educational interventions. Previous research has not consistently tracked the long-term effects of NMT on student learning outcomes in rural areas. By collecting and analyzing data on academic achievement, standardized test scores, and other indicators, this study provides a framework for future evaluations of NMT in education.

Furthermore, while the cost-effectiveness and sustainability of NMT investments have been considered in other contexts, their specific implications for rural education have not been thoroughly investigated. This study, therefore, fills a critical gap by assessing the resource efficiency of NMT policies in rural areas, with a focus on ensuring that investments lead to sustainable improvements in educational equity and economic development.

Overall, this research contributes to the existing body of knowledge by addressing the underexplored area of NMT's role in reducing educational inequities in rural areas. By highlighting the novel application of NMT to this context, the study offers valuable insights for policymakers and educators seeking to bridge the urban-rural education gap and promote equitable access to quality education for all students.

6. Conclusions

NMT provides an unprecedented opportunity to address educational inequality. From a sociological point of view, educational inequality is not only a problem of unequal distribution of resources, but also a reflection of unequal social structure. The long-standing urban-rural education gap is a complex phenomenon under the combined effect of many factors such as economy, geography and social capital. The popularization of NMT can break the time and space limitations of traditional education and provide socially disadvantaged groups, especially rural students, with equal access to educational resources as urban students. This change can help reduce inequality in the social structure, promote social mobility and give more rural students the opportunity to realize social progress through education.

From a pedagogical point of view, NMT not only provide students with a wider range of learning resources, but also innovate the traditional teaching model, making education more personalized and interactive. This innovation in education mode can, to a certain extent, make up for the lack of rural teachers' resources and teaching equipment, and improve the overall quality of education and the learning effect of students. In addition, the introduction of NMT also provides more data support for education evaluation and feedback, making the implementation and adjustment of education policies more accurate and effective. Through the application of NMT it is expected to further narrow the gap between rural education and urban education in terms of teaching resources, teachers' qualifications and learning effects.

By implementing policies that apply NMT to education in rural areas, the equity and quality of education can be significantly improved and rural students can be provided with more educational opportunities and resources. The policies examined in this paper not only compensate for the lack of educational resources in rural areas, but also improve students' learning experiences and increase academic performance by providing personalized learning styles and quality teachers. However, to achieve these goals, Governments, educational institutions and communities must work together, with a focus on strengthening network infrastructure and ensuring that online educational resources are accessible to all students. There is also a need to strengthen digital literacy training for teachers and students to enable them to effectively utilize NMT for teaching and learning. To ensure the longevity of the policy, continuous monitoring and evaluation of the effectiveness of its implementation is crucial. This will help optimize the allocation of resources, further narrow the gap between urban and rural education, and promote educational equity and social development.

In summary, NMT have great potential and significance in improving educational inequality. A more comprehensive understanding of the role of NMT in promoting educational equity from the perspectives of sociology and pedagogy provides theoretical support for further optimizing relevant policies. This not only helps to realize educational equity, but also lays a solid foundation for the overall progress and sustainable development of society. Future work should focus on improving the sustainability and cost-effectiveness of the policy and ensuring that students have equal access to quality education resources regardless of their geographical location or economic background, thereby realizing true equity in education.

Abbreviations

AI	Artificial Intelligence
USDA	US. Department of Agriculture
AP	Advanced Placement
ICT	Information and Communication Technologies
NMT	New Media Technologies

Author Contributions

Qian Xu is the sole author. The author read and approved the final manuscript.

Funding

This work is not supported by any external funding.

Data Availability Statement

Not applicable.

Conflicts of Interest

The author declares no conflicts of interest.

References

[1] Lynch, K., & Baker, J.. Equality in education: An equality of condition perspective. Theory and Research in Education. 2005, 3(2), 131-164. https://doi-org.proxy1.library.jhu.edu/10.1177/1477878505053298

[2] Hedlund, C. A. (2021). Locational Disparity in Rural Education. Master Thesis, Bethel University. May 2021.

[3] U.S. Department of Agriculture. Rural Education. Available from: https://www.ers.usda.gov/topics/rural-economy-population/employment-education/rural-education/ (accessed 30 August 2024).

[4] BROOKINGS. What is the status of educational opportunity in rural America? Available from: https://www.brookings.edu/articles/what-is-the-status-of-educational-opportunity-in-rural-america/ (accessed 30 August 2024).

[5] THE EYE | THE EAR. Understanding Rural Education Inequity. Available from: https://www.columbiaspectator.com/the-eye/2021/04/16/understanding-rural-education-inequity/ (accessed 30 August 2024).

[6] Weerasena, A., & Jayathilaka, R.. Is the best option still in low adoption? An investigation on factors affecting the adoption of online school education in rural areas in Sri Lanka. Educational Technology Research and Development. 2023, 71(3), 1371–1390. https://doi.org/10.1007/s11423-023-10201-8

[7] U.S. Department of Education. Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies. Available from: https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf (accessed 30 August 2024).

[8] Ng, S.-C., Lui, A. K.-F., & Tsui, D. S.-F.. A Mobile Application to Enhance Teaching and Learning in Classroom Environment. Engaging Learners Through Emerging Technologies. 2012, 91–101. https://doi.org/10.1007/978-3-642-31398-1_9

[9] Stenman, S., & Pettersson, F.. Remote teaching for equal and inclusive education in rural areas? An analysis of teachers' perspectives on remote teaching. The International Journal of Information and Learning Technology. 2020, 37(3), 87-98. https://doi.org/10.1108/IJILT-10-2019-0096

[10] Bullen, M.. ADULT LEARNING IN THE DIGITAL AGE: INFORMATION TECHNOLOGY AND THE LEARNING SOCIETY. The Canadian Journal for the Study of Adult Education. 2007, 20(1), 68-70. https://proxy1.library.jhu.edu/login?url=https://www.proquest.com/scholarly-journals/adult-learning-digital-age-information-technology/docview/203152306/se-2

[11] Kilpeläinen, A., Päykkönen, K., & Sankala, J.. The Use of Social Media to Improve Social Work Education in Remote Areas. Journal of Technology in Human Services. 2011, 29(1), 1–12. https://doi-org.proxy1.library.jhu.edu/10.1080/15228835.2011.572609

[12] Jan A. G. M. van Dijk. Digital divide research, achievements and shortcomings. Poetics. August–October, 2006, Volume 34, Issues 4–5, 221-235. https://doi.org/10.1016/j.poetic.2006.05.004

[13] Graves, J. M., Abshire, D. A., Amiri, S., & Mackelprang, J. L.. Disparities in Technology and Broadband Internet Access Across Rurality: Implications for Health and Education. Family & community health. 2021, 44(4), 257–265. https://doi.org/10.1097/FCH.0000000000000306

[14] Institute for Public Policy and Social Research, Michigan State University. Broadband and Student Performance Gaps. Available from: https://quello.msu.edu/wp-content/uploads/2020/03/Broadband_Gap_Quello_Report_MSU.pdf (accessed 30 August 2024).

[15] United States Census. Percentage of Households With Subscription to Any Broadband Service in Completely Rural Counties: 2013-2017. Available from: https://www.census.gov/library/visualizations/2018/comm/broadband-rural-complete.html (accessed 30 August 2024).

[16] Harris, J., Mishra, P., & Koehler, M.. Teachers' Technological Pedagogical Content Knowledge and Learning Activity Types: Curriculum-based Technology Integration Reframed. Journal of Research on Technology in Education. 2009, 41(4), 393-416. https://proxy1.library.jhu.edu/login?url=https://www.proquest.com/scholarly-journals/teachers-technological-pedagogical-content/docview/274712168/se-2

[17] Jiménez, M., Matus, J. A., & Martínez, M. A.. Economic growth as a function of human capital, internet and work. Applied Economics. 2014, 46(26), 3202–3210. https://doi-org.proxy1.library.jhu.edu/10.1080/00036846.2014.925079

[18] Policy Brief. The Promise and the Power of Distance Learning in Rural Education. Available from: http://files.eric.ed.gov/fulltext/ED498192.pdf (accessed 30 August 2024).

Biography

Qian Xu completed her master degree from the Johns Hopkins University School of Education in 2024 and her undergraduate degree from Arizona State University in 2023. She is currently planning to apply for a PhD in China in 2025.

Research Field

Qian Xu: Education, Policy, Equity, Teaching, Sociology