

Research on the Digital Divide in Youth Education in Meishan City under the Background of the Digital Age

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Abstract: This study focuses on the digital divide in youth education in Meishan City in the digital age. With the deep integration of digital technology into the field of education, there is a significant gap in the digitalization process of education between urban and rural youth in Meishan City. Urban youth have an advantage in learning with a complete network infrastructure and abundant digital resources; However, young people in rural and remote areas are constrained by factors such as network signals, bandwidth, tariffs, and resource scarcity, and face the dilemma of accessing high-quality digital education resources. Research has found that imbalanced economic development, uneven allocation of educational resources, and socio-cultural differences are the main factors causing the digital divide, which not only hinders the personal development of young people but also exacerbates educational inequality. To this end, this study draws on domestic and foreign experiences and proposes measures such as increasing policy support and resource investment, conducting digital skills training and literacy improvement activities, and building a multi-party collaborative mechanism to narrow the digital divide in youth education in Meishan City and promote educational equity. The research results can provide reference for the local government to formulate policies and schools to carry out teaching practices, and help promote the development of education equity in Meishan City.

Keywords: Digital Age; Meishan City Youth; The Digital Divide in Education.

1. Introduction

1.1. Research Background and Significance

Research background

In today's digital age, digital technology is rapidly developing at an unprecedented speed, deeply integrated into the field of education, and reshaping the education ecosystem. Digital educational tools such as online courses, virtual laboratories, and intelligent teaching platforms are constantly emerging, bringing new opportunities to education. However, the accompanying digital divide has become an obstacle to the development of education.

In Meishan City, there is a significant urban-rural difference in the popularity of the internet. The urban network infrastructure is complete, with high network coverage, sufficient bandwidth, and reasonable fees. Young students can easily access rich digital educational resources; However, unstable network signals, insufficient bandwidth, and relatively high fees in some rural and remote areas greatly limit the access of local young students to high-quality digital education resources.

research meaning

This study has significant theoretical and practical implications. In theory, current research on the digital divide and educational equity is mostly focused on the macro level, with limited in-depth analysis of specific regions and groups. This study focuses on the youth group in Meishan City and deeply analyzes the issue of education digital divide, which can help fill this gap.

In practice, research results can provide strong support for the Meishan Municipal Government to formulate policies. Helps the government optimize its information technology development plan, increase resource investment in rural and remote areas, and narrow the digital divide between urban and rural areas. At the same time, providing practical guidance to schools, assisting them in enhancing teachers' information

technology teaching capabilities, strengthening the cultivation of students' digital skills, and promoting the deep integration of information technology and education and teaching.

1.2. Review of Domestic and Foreign Research

Research on the Digital Divide and Educational Equity: In recent years, domestic scholars have increasingly focused on the impact of the digital divide on educational equity. For example, Huang Ronghuai et al. (2019) pointed out that the digital divide is not only reflected in differences in hardware facilities, but also in inequalities in information acquisition and utilization capabilities, leading to inequalities in educational opportunities, educational processes, and educational outcomes. Some studies focus on the impact of the urban-rural digital divide on educational equity, as well as the role of information technology education in narrowing the gap (Wang Xiaoning, 2017). However, current research mostly focuses on the macro level and lacks in-depth analysis of the digital divide in specific regions and groups.

Research on Information Technology Education and Network Literacy: Domestic scholars focus on the role of information technology education in bridging the digital divide and promoting educational equity, and conduct research on the connotation and cultivation methods of network literacy. For example, Zhu Zhiting et al. (2021) pointed out that network literacy is a fundamental literacy required for citizens in the digital age, and is of great significance in promoting educational equity and enhancing national quality. But currently, the cultivation of online literacy still remains at a relatively basic level, lacking in-depth application combined with subject learning and social practice.

Research on the Digital Divide and Social Inequality: Western scholars have paid early attention to the issue of the digital divide and analyzed its mechanisms and impacts from the perspectives of social stratification and social capital. For

example, the "second level digital divide" theory proposed by Warschauer (2003) emphasizes the difference between information acquisition and utilization capabilities, which has important implications for narrowing the digital divide and promoting educational equity in China.

Research on Digital Inclusion and Digital Citizenship: In recent years, international organizations and Western countries have attached increasing importance to digital inclusion and digital citizenship, emphasizing that all members of society should equally enjoy the opportunities and rights brought by digital technology. For example, UNESCO has released a series of documents calling on countries to take action to narrow the digital divide and promote educational equity (UNESCO, 2019). These international experiences have provided valuable references for our country.

1.3. Research Methods and Innovation Points

research method

This project will adopt various research methods such as literature review, questionnaire survey, interview, case analysis, and data analysis, combining quantitative analysis with qualitative analysis. Taking Meishan City as the research area and the youth group as the research object, the current situation, causes, impacts, and countermeasures of the digital divide in youth education in Meishan City under the background of the digital age will be systematically analyzed.

Innovation point

Academic ideas:

Breaking through the limitations of traditional research on the digital divide: Focusing on the youth group and paying attention to the education digital divide they face in the context of the digital age is more targeted and practical.

Emphasizing the bidirectional interaction between digital technology and educational equity: not only focusing on the negative impact of the digital divide on educational equity, but also on the possibility of using digital technology to promote educational equity.

Academic viewpoint:

Propose the concept of "digital literacy gap": Based on the traditional concept of digital literacy gap, further propose the concept of "digital literacy gap", emphasizing the impact of digital skills, network literacy, etc. on youth education equity.

Constructing a digital age youth education equity evaluation index system: Based on fully drawing on existing research results and combining with the actual situation of Meishan City, a more scientific, comprehensive, and operable digital age youth education equity evaluation index system is constructed.

Research methods:

Adopting a mixed research approach: combining quantitative research with qualitative research, organically integrating various research methods such as questionnaire surveys, interviews, and case analysis to improve the scientific, objective, and effective nature of the research.

Using big data analysis technology: Utilizing the big data accumulated on the Meishan Education Informatization Platform, conduct a more in-depth and accurate analysis of the digital divide in youth education.

2. Core Concepts and Theoretical Foundations

2.1. Definition of Core Concepts

The "digital literacy gap" is proposed based on the traditional concept of the digital divide, emphasizing the gap in digital skills and network literacy among young people. Digital skills include information technology application ability, online learning ability, information discrimination ability, etc.; Network literacy encompasses the ability to understand, evaluate, and create online information. There are significant differences among young people from different family backgrounds and regions in Meishan City, which in turn affect their learning outcomes and educational equity in the digital age.

'Educational equity' means that every young person, regardless of their geographical location, family background, or economic situation, should enjoy equal opportunities for education, the right to access high-quality educational resources, and receive fair treatment in the educational process, ultimately achieving relative equity in educational outcomes. In the digital age, the realization of educational equity is closely related to the application of digital technology, and the existence of the digital divide poses a serious challenge to it.

2.2. Theoretical Basis

This study is mainly based on social equity theory and technology acceptance model theory. The theory of social equity emphasizes that the allocation of social resources should follow the principle of fairness. In the field of education, digital educational resources are important educational resources, and their fair distribution is crucial. The digital divide in youth education in Meishan City reflects the unfair distribution of digital education resources, which violates the theory of social equity. This theory provides value orientation for research, prompting research to focus on narrowing the digital divide and promoting the realization of educational equity.

The theory of technology acceptance model suggests that an individual's acceptance and use of technology are influenced by factors such as their perceived usefulness, perceived ease of use, and attitude towards use. In the youth education scene of Meishan City, some young people have a low perception of the usefulness and ease of use of digital education resources due to poor network access and insufficient digital skills, resulting in a weak willingness to use them.

3. Investigation on the Current Situation of Digital Divide in Youth Education in Meishan City

3.1. Survey Design

The purpose of this survey is to comprehensively understand the current situation of the digital divide in youth education in Meishan City, using a combination of stratified sampling and random sampling methods to ensure the representativeness of the sample. The research subjects cover the youth group aged 15-35 in Meishan City, including current students, college graduates, and migrant workers.

The questionnaire design revolves around three dimensions: network access, digital resource acquisition, and digital skill

mastery. In terms of network access, setting network coverage, network speed, network fees, and other issues; The dimensions of digital resource acquisition involve acquisition channels, resource richness, resource acquisition difficulty, etc; The dimension of mastering digital skills includes information technology application ability, online learning ability, information discrimination ability, and other content. In addition, multiple sets of scale questions are designed to quantify the feelings and evaluations of young people towards various aspects. At the same time, design differentiated questionnaire content for different groups to obtain more accurate information. In addition to the questionnaire survey, an interview outline was also developed to select relevant personnel from government departments, schools, enterprises, etc. for interviews, collecting data from multiple dimensions to provide sufficient basis for in-depth analysis.

3.2. Investigation Implementation Process

In the implementation stage of the investigation, the first step is to form a professional investigation team and provide training to team members to ensure they are familiar with the investigation process, questionnaire content, and interview skills. The survey covers all districts and counties in Meishan City, including urban and rural areas.

For on campus students, collaborate with the school to distribute questionnaires during classroom or self-study hours, and collect them on the spot to ensure the questionnaire collection rate and authenticity. For college graduates and young migrant workers in cities, online questionnaire platforms are used for surveys, and questionnaire links are widely distributed through social media, alumni groups, internal enterprise groups, and other channels. At the same time, select representative schools, enterprises, and communities for on-site interviews to gain a deeper understanding of the actual situation, difficulties, needs, and suggestions of young people in the education digital divide.

During the investigation process, conduct preliminary screening on the collected questionnaires in a timely manner and eliminate invalid questionnaires. Record and organize the interview content in detail. The entire investigation process strictly follows scientific norms to ensure the comprehensiveness, accuracy, and reliability of data collection.

3.3. Analysis of Investigation Results

A total of 2000 valid questionnaires were collected and over 100 people were interviewed during the survey. In terms of network access, data shows that the network coverage rate for urban youth is 98%, while for rural youth it is 85%; The average internet speed for urban youth is 50Mbps, while for rural youth it is only 20Mbps; The proportion of internet expenses to income for urban youth is 3%, while for rural youth it is 5%. This indicates a significant gap in network access between urban and rural areas, which affects the efficiency of rural youth in accessing digital educational resources.

On average, urban youth have 5 channels to obtain high-quality digital education resources, while rural youth only have 3 channels; 30% of urban youth believe that resources are abundant and easily accessible, while this proportion is only 15% among rural youth. This reflects the imbalance in the acquisition of digital resources between urban and rural areas.

In terms of mastering digital skills, it was found through

testing that urban youth scored an average of 75 points in information technology application ability, while rural youth scored 60 points; The average score for online learning ability is 70 for urban youth and 62 for rural youth; The ability to distinguish information is 72 points for urban youth and 65 points for rural youth. It can be seen that urban youth are generally better than rural youth in digital skills, further widening the education gap and highlighting the urgency of narrowing the digital divide in youth education in Meishan City.

4. The Impact Mechanism of Digital Divide on Youth Education Equity in Meishan City

4.1. Impact of Network Access Differences

The differences in network access have had multiple impacts on the equity of youth education in Meishan City. A survey shows that the network coverage rate in urban areas of Meishan City is as high as 95%, while in rural areas it is only 70%. In terms of network speed, the average download speed for urban youth can reach 50Mbps, while rural youth only have around 20Mbps. The gap in network access directly leads to a much lower efficiency for rural youth in accessing digital educational resources compared to urban youth.

Online education courses are an important way to obtain educational resources. Due to unstable or slow internet speeds, rural youth often experience lag and long loading times when watching online courses, seriously affecting their learning experience and effectiveness. Taking watching a 45-minute high-quality online course as an example, urban youth can smoothly watch and fully absorb knowledge, while rural youth may have less than 30 minutes of actual effective learning time due to network issues, greatly reducing their knowledge acquisition. Over the long term, the gap between urban and rural youth in terms of knowledge reserves and learning progress has continued to widen, further exacerbating educational inequality.

4.2. The Impact of Uneven Distribution of Digital Resources

Unequal distribution of digital resources is a key factor affecting the equity of youth education in Meishan City. In Meishan City, high-quality digital education resources are mostly concentrated in urban schools, which on average have access to more than 5 online education platforms and can obtain rich electronic textbooks, famous teacher courses, and other resources; In rural schools, over 60% only have 1-2 basic platforms, and resource updates are slow.

From the perspective of educational software usage, the proportion of urban youth using educational apps has reached 80%, and the types of apps used are diverse, covering multiple fields such as learning guidance and interest cultivation; The proportion of rural youth using educational apps is only 50%, and it is mostly concentrated in basic subject tutoring apps. This uneven distribution of resources results in fewer opportunities for rural youth to access cutting-edge knowledge and diverse learning content, limiting their ability to broaden their knowledge and enhance their comprehensive literacy. The gap between rural youth and urban youth in terms of educational starting points and processes is gradually widening, hindering the realization of educational equity.

4.3. Impact of Digital Skills Gap

There is a significant gap in digital skills among young people in Meishan City, which has a profound impact on educational equity. Research data shows that 75% of urban youth are proficient in using office software, conducting online self-directed learning, and information filtering abilities; Among rural youth, this proportion is only 40%.

When faced with complex online learning tasks, urban youth can quickly utilize online resources to expand their learning. For example, when completing exploration assignments for history classes, 70% of urban youth can enrich their perspectives by searching for authoritative information and academic papers online; However, only 45% of rural youth can achieve it, and the rest of rural youth may rely on limited textbook content due to a lack of information search and screening skills, resulting in a gap in homework quality and knowledge mastery compared to urban youth. The gap in digital skills is also reflected in the use of online education platform functions. Urban youth can better utilize interactive functions to communicate with teachers and classmates, while rural youth are relatively passive, further affecting their learning outcomes and educational equity.

5. Analysis of Factors Influencing the Digital Divide in Youth Education in Meishan City

5.1. Economic Factors

The difference in economic development level is an important factor causing the digital divide in youth education in Meishan City. Meishan City has developed rapidly in urban economy and has sufficient fiscal revenue, which enables it to invest a large amount of funds in network infrastructure construction and digital education resource procurement. For example, the investment in network construction in urban areas is three times that of rural areas, resulting in high network coverage and fast internet speeds, making it easy for young students to access digital educational resources.

However, the rural economy is relatively backward, with limited financial resources and insufficient investment in network construction and digital education resources. The average income of rural households is lower than that of urban households, and some rural households find it difficult to afford the expenses of network fees and purchasing digital devices, which limits young students' use of digital educational resources at home. At the same time, economic backwardness has led to insufficient attractiveness of high-quality educational resources in rural areas, and the slow expansion of digital education enterprises in rural areas has further exacerbated the digital divide.

5.2. Factors Affecting the Allocation of Educational Resources

The uneven allocation of educational resources has a significant impact on the digital divide in youth education in Meishan City. In terms of school hardware facilities, urban schools are equipped with advanced multimedia classrooms, computer rooms, etc. On average, each classroom has intelligent teaching equipment, and students can engage in digital learning at any time; The multimedia equipment in rural schools is outdated and insufficient, and some schools even share a multimedia classroom with several classes.

The gap in teaching staff is also evident. Most teachers in

urban schools have received systematic information technology training and are proficient in using digital educational resources for teaching; Rural school teachers have limited opportunities for information technology training, making it difficult to effectively utilize digital resources to improve teaching quality. In addition, when allocating high-quality digital education resources, the education department tends to tilt more towards urban schools, and rural schools have limited channels to obtain resources, which has led to a widening gap between urban and rural youth in enjoying digital education resources.

5.3. Sociocultural Factors

Sociocultural factors have played a driving role in the formation of the digital divide in youth education in Meishan City. In cities, parents generally attach great importance to education, have strong digital awareness, and are willing to invest in their children's digital learning, such as purchasing tablets, learning software, etc. They also guide their children to use digital devices correctly for learning, creating a strong digital learning atmosphere at home.

Influenced by traditional beliefs, some parents in rural areas have insufficient awareness of the importance of digital education, believing that their children only need to learn textbook knowledge well, and have concerns and restrictions on their use of digital devices. Moreover, rural areas lack a social atmosphere for digital learning, and there is less communication among young students about digital learning. At the same time, the promotion and dissemination of digital education in rural communities is insufficient, and a good digital learning environment has not been formed, resulting in rural youth falling behind urban youth in digital literacy and skills development, deepening the digital divide in education.

6. Experience and Reference in Narrowing the Digital Divide at Home and Abroad

6.1. Analysis of Successful Cases Abroad

Finland has achieved significant results in narrowing the digital divide. The Finnish government has long been committed to building a high-speed network infrastructure that covers the whole country. Through policy guidance and financial investment, the national network coverage rate is extremely high, and remote areas can also enjoy stable high-speed network services, providing a basic guarantee for young people to access digital education resources.

In terms of educational resource allocation, Finland emphasizes fairness, with the state leading the development of a unified digital education resource platform that integrates high-quality educational content and is open to schools nationwide for free. This platform covers rich course materials, online learning tools, etc., and young students from different regions can equally access them. At the same time, Finland has incorporated digital skills training into the national education system, offering information technology courses from primary school onwards, emphasizing practical operations, and enhancing students' digital literacy. For example, students use project-based learning and digital tools to solve practical problems in the classroom, which leads to a higher overall level of digital skills among Finnish youth, effectively narrowing the digital divide and creating favorable conditions for educational equity.

6.2. Summary of Excellent Domestic Practice Experience

Zhongshan City in Guangdong Province has explored a successful path in narrowing the digital divide in urban and rural education. Zhongshan has built a large platform of "Internet plus Education" to integrate high-quality digital education resources in the region and realize resource sharing between urban and rural schools. The courses of renowned teachers from urban schools are synchronized in real-time to rural schools through the platform, allowing rural students to enjoy high-quality teaching resources simultaneously.

In order to enhance the information technology application ability of rural teachers, Zhongshan City regularly organizes teacher training, invites experts to give lectures, carries out online and offline teaching and research activities, and encourages teachers to integrate digital technology into teaching. In addition, Zhongshan City has launched the "Urban Rural Pairing Assistance" activity, where urban schools and rural schools form pairs to deeply cooperate in teaching management, curriculum development, teacher training, and other aspects. Through these measures, the digital learning environment for rural youth in Zhongshan City has been greatly improved, and the digital divide between urban and rural education has significantly narrowed, providing a model for other regions to learn from.

7. Suggestions for Narrowing the Digital Divide in Youth Education in Meishan City

7.1. Policy Support and Resource Investment

The government should play a leading role and increase policy support. Establish special financial funds to improve the network infrastructure in rural and remote areas of Meishan City, ensuring full coverage and stable high-speed network. For example, provide subsidies to network construction enterprises to reduce the cost of rural network construction. At the same time, preferential policies should be formulated to encourage digital education resource providers to provide free or low-priced high-quality education resources to rural and economically underdeveloped areas.

Balance the allocation of educational resources between urban and rural areas in terms of investment. Intensify the procurement of digital education equipment for rural schools, such as equipping them with sufficient quantities of computers, multimedia teaching equipment, etc. Establish a unified digital education resource platform for the whole city, integrate high-quality courses, teaching materials, and other resources, open to young people in the city for free, especially in rural and remote areas, to ensure that all young people can equally access high-quality digital education resources and narrow the digital divide from both hardware and software aspects.

7.2. Digital Skills Training and Literacy Enhancement

Carry out hierarchical and classified training to address the differences in digital skills among young people in Meishan City. For students in school, incorporating digital skills courses into the regular teaching system, developing differentiated teaching content according to different grades, gradually improving students' digital skills from basic computer operations to complex information analysis and

processing. For example, adding introductory programming courses in junior high school to cultivate students' logical thinking and innovative abilities.

For young people in society, collaborate with enterprises, communities, and vocational training institutions to carry out diverse digital skills training activities. Using a combination of online and offline methods to provide flexible learning pathways. At the same time, organizing digital skills competitions, online learning and exchange activities, etc., to stimulate the enthusiasm of young people to learn digital skills. In addition, through community promotion, public lectures and other forms, we aim to enhance the online literacy of young people, strengthen their ability to discern information and make reasonable use of online resources, in order to meet the learning and living needs of the digital age.

7.3. Construction of Multi Party Collaborative Mechanism

Establish a collaborative mechanism among the government, schools, enterprises, and society. Government departments are responsible for formulating policies, coordinating resources, and guiding various forces to participate in narrowing the digital divide. Schools should play a leading role in education, strengthen communication and collaboration with parents, and guide families to create a good digital learning atmosphere. For example, conducting lectures on digital education for parents can enhance their awareness and guidance ability towards digital education.

Enterprises should actively fulfill their social responsibilities, cooperate with schools to carry out practical projects, and provide young people with opportunities to practice digital skills. For example, Internet enterprises can jointly build digital laboratories with schools. All sectors of society, such as public welfare organizations and libraries, should fully leverage their own advantages to carry out digital education public welfare activities and provide free digital learning spaces and resources. All parties should work together to create a fair digital education environment for the youth of Meishan City and effectively narrow the digital divide in education.

8. Conclusion

This study focuses on the issue of digital divide in youth education in Meishan City, deeply analyzing its current situation, impact mechanism, and causes, and proposing targeted countermeasures. Research has found that there is a significant gap in internet access, digital resource acquisition, and digital skill mastery among young people in Meishan City, which not only hinders their personal development but also exacerbates educational inequality.

Uneven economic development, uneven allocation of educational resources, and socio-cultural differences are the main factors causing the digital divide. To this end, this study draws on domestic and foreign experiences and proposes to improve network infrastructure and optimize resource allocation through policy support and resource investment; Carry out digital skills training and literacy improvement activities to enhance young people's digital abilities; Build a multi-party collaborative mechanism to gather the strength of all parties to narrow the digital divide.

In the future, we should continue to pay attention to the digital divide in youth education in Meishan City and dynamically adjust our strategies. The government, schools,

enterprises, and society need to work together to continuously improve relevant measures, create a fair digital education environment for young people, help them grow, and promote the development of education equity in Meishan City.

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