

Factors Affecting Chinese Higher Education Institutions' Use Of Online Learning Platforms To Significantly Increase Educational Equity

Hao Zhu¹, Anan Pongtornkulpanich^{2*}

^{1,2*} Chakrabongse Bhuvanarth International Institute for Interdisciplinary Studies (CBIS), Rajamangala University of Technology Tawan-OK, Thailand. [Email:- anan_po@rmutto.ac.th](mailto:anan_po@rmutto.ac.th).

Citation: Hao Zhu, Anan Pongtornkulpanich , Et Al. (2024) Factors Affecting Chinese Higher Education Institutions' Use Of Online Learning Platforms To Significantly Increase Educational Equity , *Educational Administration: Theory And Practice*, 30(6), 3223 - 3226
Doi: 10.53555/kuey.v30i6.6049

ARTICLE INFO

ABSTRACT

This study investigates the factors influencing Chinese higher education institutions' use of online learning platforms to significantly increase educational equity, as well as the importance of promoting educational equity in alignment with the Sustainable Development Goals (SDGs). Quantitative methods are used in this study. The study's findings demonstrate the immediate and indirect effects of the digital divide on numerous elements of educational equity. The findings show that the digital gap has a major impact on critical educational features such as resource distribution and instructional process implementation equity. The large indirect impacts reveal a complicated relationship between the digital gap and the use of online learning platforms that is influenced by numerous factors of educational equity. This study not only improves our theoretical understanding of the role of digital education in promoting educational equity, but it also offers policymakers, educators, and technology providers practical insights. Within the larger scholarly discourse, the findings emphasize the importance of online education in reducing educational inequality. This study emphasizes the need of strategically using internet platforms in community higher education institutions.

Keywords: Sustainable development goal, educational equity, online learning platform

1. Introduction

The Educational equality is a key worldwide undertaking that has a direct connection to Sustainable Development Goal (SDG) 4, which calls for high-quality, equitable, and lifelong learning opportunities for everyone (Burbules et al., 2020). This goal emphasizes the significance of equitable access to education at all levels and forms, including vocational and adult learning, and is critical to achieving other SDGs such as poverty reduction, health and well-being, and gender equality (Jiang & Pu, 2022; Lal et al., 2021). Educational equality, defined in social justice, ensures that every individual, regardless of background, has equal access to excellent education (Gümüş et al., 2021). Despite the rapid growth and global proliferation of online education platforms, which hold the promise of democratizing education, the realization of educational equity remains elusive, particularly in Chinese Higher Education Institutions (CHEIs) (Santamaría & Jean-Marie, 2014). The advancement of technology and the emergence of online education platforms have transformed the educational landscape, offering accessible, flexible, and diverse learning opportunities (Alam, 2022). However, in China, the challenge of educational inequality is exacerbated by disparities in access to quality education, resources, and opportunities, particularly between urban and rural areas and among different socio-economic groups (Ma & Li, 2021; Mei & Symaco, 2021; Xiao & Zhang, 2022). While there is a significant body of research on online education globally, there is a notable gap in comprehensive studies specifically addressing the Chinese context (Lim et al., 2020; Tonegawa, 2022). Existing research often focuses on the effectiveness and adoption rates of online platforms but lacks depth in exploring their impact on educational equity in CHEIs. Moreover, there is limited empirical understanding of the factors influencing the adoption of commercial online education platforms by students in China's top universities and how these platforms can be leveraged to enhance

educational equity (Jiang & Pu, 2022; Pu & Jiang, 2021). The aim of this study is to investigate the factors influencing the adoption of online education platforms for promoting educational equity in Chinese higher education institutions in order to provide actionable insights and recommendations for stakeholders to effectively utilize online education platforms for enhancing educational equity in Chinese higher education institutions.

2. Literature review

Educational equity theory, created in the 1960s and founded on social justice concepts (Gümüş et al., 2021), emphasizes fair resource allocation, equal educational opportunities, and equitable educational procedures and outcomes (Zahra, 2021). The essential elements comprise of fair distribution of resources (Druege et al., 2019), guaranteeing equal opportunities for pupils from different backgrounds to get high-quality education (Reimers, 2022; Toquero, 2020), and employing unbiased teaching and assessment techniques (Blossfeld & Von Maurice, 2019).

The term "digital divide theory," which first appeared in the 1990s, refers to the variations in how various populations and geographical areas use and have access to information and communication technology (ICT) (Szymkowiak et al., 2021). It emphasizes the potential for technological progress to exacerbate social disparities, especially in the field of education, where its goal is to reduce technology disparities in order to achieve educational fairness (Van Dijk, 2020). The essential elements are physical infrastructure, software assets, network connectivity, disparities in expertise, and societal assistance (Caena & Redecker, 2019).

To sum up, the theories of educational equity and digital divide offer a thorough framework for comprehending and resolving the issues in modern education. Educational Equity Theory, derived from the principles of social justice, highlights the importance of equitable allocation of resources and equal access to educational opportunities. It has been modified to incorporate online education in the aftermath of the pandemic (Gümüş et al., 2021; Zahra, 2021). During the 1990s, the emergence of Digital Divide Theory helped to explain the inequalities in access to and use of ICT (Information and Communication Technology). This theory emphasizes the importance of fair and equal integration of technology in education. (Szymkowiak et al., 2021; Van Dijk, 2020). Both theories emphasize the necessity of conducting research and developing policies to tackle emerging technologies, with a particular focus on disadvantaged groups. Additionally, cross-cultural studies are crucial to ensure educational fairness in a rapidly changing digital environment (Azubuike et al., 2021; Papadopoulos & Cleveland, 2023; Reggi & Gil-García, 2021; Zhang et al., 2022).

3. Research methodology

This study employs the methodology of quantitative research. A purposive sample strategy was employed to select 609 persons who had previous experience using and consuming online education platforms for the online questionnaire. Furthermore, the surveyed population predominantly consists of students enrolled at Tsinghua University, Peking University, Fudan University, Nanjing University, and Southwest Jiaotong University. Subsequently, we employ the 5-point Likert scale to assess the factors. The research employs a complete technique for data analysis, which initiates with descriptive statistical analysis to investigate demographic information and other relevant data of the surveyed sample (Sulistyawati et al., 2021). This multifaceted methodological approach, which includes descriptive statistics, reliability and validity testing, CFA, model fitting, and path analysis (Gates et al., 2020; Lospinoso & Snijders, 2019).

4. Results

Descriptive analysis: The demographics in this study demonstrated that the majority of participants were female (57.5%), the largest age group was 22–25 years (43.5%), the majority had 2–3 years of experience (44.3%), and a significant majority of the participants came from rural areas (67.7%). The family income data shows the largest group earning between 100,000 and 200,000 yuan annually, and the education level was holding a bachelor's degree (51.2%).

The reliability and validity analysis reveals that the Cronbach's alpha value of 0.938 is significantly high, indicating very strong internal consistency among the items in the scale. The KMO measure of 0.956 is exceptionally high, far exceeding the commonly accepted threshold of 0.6, which indicates that the sample size is adequate and the data patterns are suitable for factor analysis. In addition, Bartlett's Test of Sphericity further supports this by showing a significant chi-square value of 13079.921 with 903 degrees of freedom and a significance level of 0.000. The confirmatory factor model fits metrics, which are essential for evaluating how well the proposed theoretical model fits the observed data. The fit indices include Chi-square/df = 1.528, RMSEA = 0.029, GFI = 0.930, AGFI = 0.919, NFI = 0.935, TLI = 0.974, and CFI = 0.977. The reference standards for these indices suggest acceptable thresholds for a good model fit: Chi-square/df < 3, RMSEA < 0.08, and all others > 0.9.

The results indicate a good model fit, with all indices meeting or exceeding the reference standards, suggesting that the theoretical model is a good representation of the observed data. For the convergence validity of the

latent variables, Dd1-Dd7 (CR=0.890, AVE=0.535), Fr1-Fr4 (CR=0.829, AVE=0.548), Fi1-Fi7 (CR=0.905, AVE=0.578), Eo1-Eo5 (CR=0.873, AVE=0.581), Ei1-Ei6 (CR=0.909, AVE=0.624), and Ao1-Ao6 (CR=0.890, AVE=0.575). Therefore, all the reliability (CR) values are above the acceptable threshold of 0.7, and the average variance extracted (AVE) values are above 0.5, suggesting good convergence validity. (Dd: Digital Divide; Fr: Fair Resource Allocation; Fi: Fairness in the Education Process; Eo: Equality of Educational Opportunities; Ei: Equity in Educational Outcomes; Ao: Adoption of an Online Education Platform for Education Equality.)

According to the model fit metrics for the structural equation model (SEM), the results indicate a Chi-square/df ratio of 1.943, which is well below the recommended threshold of 3, suggesting a good fit. The RMSEA value of 0.039 is significantly lower than the standard of 0.08, further confirming the model's adequacy. Each of the GFI, AGFI, NFI, TLI, and CFI indices is higher than its reference value (GFI = 0.907, NFI = 0.917, TLI = 0.954, CFI = 0.958, and AGFI = 0.894). This means that the theoretical model and the observed data fit together well. Along with each other, these metrics show that the SEM is strong and accurately describes the study's relationships and concepts, giving us a solid base for further research and interpretations.

5. Conclusion

In conclusion, the study provides a thorough examination of the relationship between the digital divide and the uptake of online education platforms, as viewed within the framework of educational justice. According to the findings of a structural equation model, the digital divide has significant direct effects on several aspects of educational equity, including fair resource distribution, fair teaching, equality in educational opportunities, and fair education outcomes. Strong path coefficients and statistical significance support these findings, emphasizing the severe influence of digital inequities on educational practices and outcomes. Furthermore, the study extends beyond the direct effects to investigate the indirect effects mediated by these factors. The mediation study reveals a complex interaction between the digital divide and the use of online learning platforms. Fair resource allocation, equal educational opportunities, process fairness, and outcome equity all have significant indirect effects. These findings emphasize the multiple nature of the digital divide, suggesting that its impact on educational technology adoption is complex and mediated by a variety of educational equity issues. Furthermore, the examination of the path data using structural equation modeling (SEM) offers valuable insights into the relationship between the digital divide and the use of online education platforms. The relationship between the Digital Divide and platform adoption is significantly influenced by factors such as resource allocation, educational possibilities, and equity in outcomes. These factors play a large role in mediating this relationship, as indicated by the significant effect sizes observed in these mediation paths. These findings highlight the complex and diverse effects of the Digital Divide. It directly impacts educational equity in numerous ways and also indirectly influences the uptake and efficacy of online education platforms. To improve the efficacy and equality of online education, this thorough analysis highlights the necessity of focused interventions that address the direct as well as indirect effects of the digital divide. In terms of practical implications, the study's findings have significant managerial implications for various stakeholders in the realm of education, particularly in the context of online learning and digital equity. These stakeholders include educational policymakers, school administrators, technology providers, and educators.

6. Acknowledgements

This academic article is by a graduate student in the Doctor of Philosophy programme in management at Chakrabongse Bhuvanarth International Institute for Interdisciplinary Studies (CBIS), Rajamangala University of Technology, Tawan-OK, Thailand. The researcher would like to thank all of the cited experts for their contributions to this research.

7. Reference

1. Alam, A. (2022). Platform utilizing blockchain technology for eLearning and online education for open sharing of academic proficiency and progress records.
2. In *Smart Data Intelligence: Proceedings of ICSMDI 2022* (pp. 307-320). Springer.
3. Azubuike, O. B., Adegboye, O., & Quadri, H. (2021). Who gets to learn in a pandemic? Exploring the digital divide in remote learning during the COVID-19 pandemic in Nigeria. *Int J Educ Res Open*, 2, 100022.
4. Blossfeld, H.-P., & Von Maurice, J. (2019). *Education as a lifelong process*. Springer.
5. Burbules, N. C., Fan, G., & Repp, P. (2020). Five trends of education and technology in a sustainable future. *Geography and Sustainability*, 1(2), 93-97.
6. Caena, F., & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu). *European Journal of Education*, 54(3), 356-369.
7. Druege, U., Hilo, A., Perez-Perez, J. M., Klopotek, Y., Acosta, M., Shahinnia, F., Zerche, S., Franken, P., &

- Hajirezaei, M. R. (2019). Molecular and physiological control of adventitious rooting in cuttings: phytohormone action meets resource allocation. *Ann Bot*, 123(6), 929-949. <https://doi.org/10.1093/aob/mcy234>
8. Gümüş, S., Arar, K., & Oplatka, I. (2021). Review of international research on school leadership for social justice, equity and diversity. *Journal of Educational Administration and History*, 53(1), 81-99.
 9. Gates, K. M., Fisher, Z. F., & Bollen, K. A. (2020). Latent variable GIMME using
 10. model implied instrumental variables (MIIVs). *Psychol Methods*, 25(2), 227-242.
 11. Hartemink, A. E., Kosaki, T., & Lascelles, B. (2021). Soils and sustainable development goals of the United Nations: An International Union of Soil Sciences perspective. *Geoderma Regional*, 25, e00398.
 12. Jiang, S., & Pu, R. (2022). An empirical investigation on sustainable consumption behaviors in the online Education industry: perspectives from Chinese college student. *International Journal of Entrepreneurship*, 26, 1-17.
 13. Lal, R., Bouma, J., Brevik, E., Dawson, L., Field, D. J., Glaser, B., Hatano, R.,
 14. Lim, C. P., Ra, S., Chin, B., & Wang, T. (2020). Leveraging information and communication technologies (ICT) to enhance education equity, quality, and efficiency: case studies of Bangladesh and Nepal. *Educational Media International*, 57(2), 87-111. <https://doi.org/10.1080/09523987.2020.1786774>
 15. Lospinoso, J., & Snijders, T. A. (2019). Goodness of fit for stochastic actor-oriented
 16. models. *Methodological Innovations*, 12(3), 2059799119884282.
 17. Ma, D., & Li, X. (2021). Allocation Efficiency of Higher Education Resources in China.
 18. *International Journal of Emerging Technologies in Learning*, 16(11), 59-71. <https://doi.org/10.3991/IJET.V16I11.23315>
 19. Mei, W., & Symaco, L. P. (2021). Higher Education for Development: The Role of University Towns in China. *SAGE Open*, 11(3), 21582440211046586.
 20. Papadopoulou, N., & Cleveland, M. (2023). An international and cross-cultural perspective on 'the wired consumer': The digital divide and device differencedilemmas. *Journal of Business Research*, 156, 113473.
 21. Pu, R., & Jiang, S. (2021). Understanding the consumption behaviors in online education towards promoting the sustainable development goals (SDGs). *Academy of Entrepreneurship Journal*, 27(6), 1-16.
 22. Reggi, L., & Gil-Garcia, J. R. (2021). Addressing territorial digital divides through ICT strategies: Are investment decisions consistent with local needs? *Government Information Quarterly*, 38(2), 101562.
 23. Reimers, F. M. (2022). Primary and secondary education during Covid-19: Disruptions to educational opportunity during a pandemic. *Springer Nature*.
 24. Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. *Technology in Society*, 65, 101565
 25. Santamaria, L. J., & Jean-Marie, G. (2014). Cross-cultural dimensions of applied, critical, and transformational leadership: women principals advancing social justice and educational equity. *Cambridge Journal of Education*, 44(3), 333-360.
 26. Sulistyawati, S., Rokhmayanti, R., Aji, B., Wijayanti, S. P. M., Hastuti, S. K. W., Sukesri,
 27. T. W., & Mulasari, S. A. (2021). Knowledge, Attitudes, Practices and Information Needs During the COVID-19 Pandemic in Indonesia. *Risk Manag Healthc Policy*, 14, 163-175. <https://doi.org/10.2147/RMHP.S288579>
 28. Tonegawa, Y. (2022). Education in SDGs: What is Inclusive and Equitable Quality
 29. Education? In *Sustainable Development Disciplines for Humanity: Breaking Down the 5Ps—People, Planet, Prosperity, Peace, and Partnerships*, pp. 55-70.
 30. Toquero, C. M. (2020). Challenges and opportunities for higher education amid the COVID-19 pandemic: The Philippine context. *Pedagogical Research*, 5(4).
 31. Van Dijk, J. (2020). *The digital divide*. John Wiley & Sons.
 32. Xiao, F., & Zhang, J. (2022). China's Approach to Digital Transformation of Higher Education: Digital Infrastructure and (Open) Educational Resources
 33. Zahra, S. A. (2021). The resource-based view, resourcefulness, and resource management in startup firms: A proposed research agenda. *Journal of Management*, 47(7), 1841-1860. <https://doi.org/10.1177/01492063211018505><https://doi.org/10.1111/EJED.12345>
 34. Zhang, Z., Wen, F., Sun, Z., Guo, X., He, T., & Lee, C. (2022). Artificial intelligence-enabled sensing technologies in the 5G/internet of things era: from virtual reality/augmented reality to the digital twin. *Advanced Intelligent Systems*, 4(7), 2100228. <https://doi.org/10.1002/aisy.202100228>