Will ChatGPT Make Education more Equitable in Developing Countries?

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Abstract. Under the present digital background, digital technology such as ChatGPT has become an important support and an essential tool in improving education equality. However, improving the level of education in developing countries and narrowing the gap in current education resources using digital method have become an urgent problem that need to be solved. Therefore, this essay first discusses what education equity in developing countries is facing right now. Secondly, it analyzes the potential effects of ChatGPT. And finally, it conducts some ways to effectively use ChatGPT to reduce the education gap between developed countries and developing countries. In order to enrich the theoretical foundation of ChatGPT's practices of promoting the development of education equity, and guide the implementations of fair and quality education.

Keywords: ChatGPT; education equality; opportunities and challenges.

1. Introduction

Education inequality is a persistent issue globally. The World Inequality Database on Education reveals that in India, 15-year-old students from the poorest 20% of families perform only half as well in math compared to their counterparts from the richest 20% of families [1]. Education disparities are even more pronounced in some countries like Nigeria and Madagascar. Fortunately, AI technology such as ChatGPT has emerged to provide study materials like books, websites, and forums. In this way, ChatGPT has mitigated education barriers resulting from geographic or economic factors. Could ChatGPT go further and guarantee equal access to educational resources for teenagers across all countries and regions? This essay examines the impact of emerging information technologies on education equity, with a focus on ChatGPT. Firstly, it analyzes the current education challenges faced by developing countries. Secondly, it investigates the role of ChatGPT in promoting education equity. By complementing existing research, this essay aims to foster balanced and sustainable development of education in developing countries.

The idea of educational equity can be traced back to Plato, who believed that regulations were necessary to protect citizens' educational rights. Over time, research on educational equity has expanded to include social justice, social development, and other related fields, leading to a better understanding of the concept and its implications. The core of educational equity is ensuring equal opportunities for education. James Coleman's research in the US highlighted the unequal distribution of educational resources and biased evaluations of students based on their skin color [2]. Guo Caiqin proposed that educational justice encompasses both the actual existence and meaning of judgment. The first concept pertains to the educational resources owned by individuals, while the second concept evaluates whether or not these resources are distributed evenly [3]. Educational equity can be categorized into equal distribution of social resources and equal distribution of time, according to Ruan Yihua, Tang Bin et al, and others in the field of educational economics [4]. Political philosophy, on the other hand, emphasizes the distribution and allocation of educational resources, as stated by Wang Shiyue. Conservatism asserts that education should be based on an individual's ability and qualifications, while liberalism views education as a fundamental right for all individuals [5].

Many researchers conducted research on how to achieve education equality. Geisinger stands for establishing effective and complete financial aid policies to guarantee education expenditure for the

low-income group [6]. Meyer points out that the government should give full play to its management function [7]. Shi Tingcheng made suggestions on how to promote the rational allocation of urban and rural educational resources [8]. Tan Songhua thinks that more attention should be paid to the establishment of an educational equity system [9].

2. Analysis of Educational Equity in Developing Countries

2.1 Poverty Brings Even Greater Education Crisis for Developing Countries

During the 56th session of the UN Commission on Population and Development, Amina Mohamed, the UN Deputy Secretary-General, highlighted that despite some progress in education, over 260 million children and teenagers are still out of school [10]. Developing countries are struggling with low education quality, as shown in Fig 1. And although a large number of students in developing countries attend school, they do not develop their study skills. The average cognitive ability of students in low-income countries is significantly lower than those in high-income countries. For instance, only a quarter of third graders in some Sub-Saharan African countries can identify simple sentences. Education inequality not only hinders the coordinated, balanced, and high-quality development of education among countries in the community of human destiny but also obstructs the export of human resources and the rapid economic growth of countries. Poverty has caused severe education problems for developing countries, and their low education level is preventing them from training talented individuals. This vicious cycle poses many challenges to the economic and educational development of developing countries.
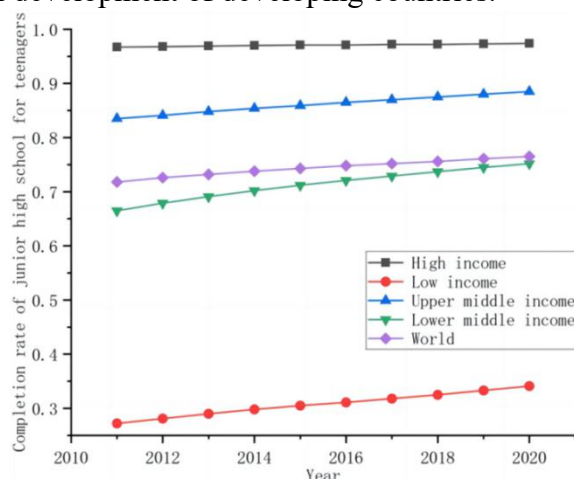

Fig. 1 Junior high school completion rates for adolescents by income group from 2011 to 2020

2.2 The Pandemic has Exacerbated Educational Inequities in Developing Countries

COVID-19 has had an unprecedented negative impact on global education, forcing more than 1.6 billion students to stop attending classes. Online learning has become the most common form of education, but developing countries face challenges with access to electricity and networks, for instance. In Sub-Saharan Africa, only 47% of people have access to electricity and the ratio with access to the network is even lower, which exacerbates educational inequality. The pandemic has also reduced disposable incomes for families in these countries.

2.3 Gender Bias Causing Education Inequality in Developing Countries

Gender bias in developing countries may lead to education inequality, affecting women's access to digital advice and social status. Research shows that 50% of people believe men are better leaders and managers, while over 40% believe men are better managers for enterprises. Additionally, gender bias affects women's career choices, with less than 25% of women studying engineering, manufacturing, construction, or ICT in over two-thirds of countries worldwide in 2017.
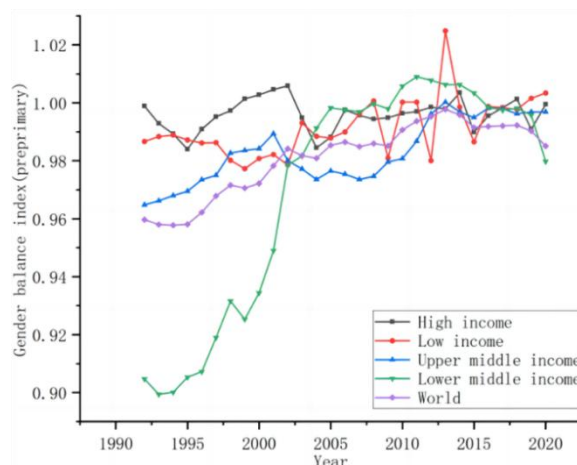
Fig 2 Gender Balance Index of Education by Income Group from 1992 to 2020 (Pre-school)

2.4 Developing Countries Still Face the Problem of Lack of Information and Communication Technology and Financial Resources

The digital economy has significantly impacted education, with internet coverage providing free study resources. However, some regions still face inequity in technology and investment. For instance, only 26% of people in Middle and East Africa have internet access, compared to 98% in Europe and 92% in North America. This lack of internet access leads to low levels of education for students from developing countries, exacerbated by the unfair development of education.

3. Analysis of the Positive Impact of ChatGPT on Education in Developing Countries

Countries like the US are strictly controlling the use of ChatGPT. But countries like Finland think that people should accept ChatGPT. And let students know how to use ChatGPT wisely and responsively [11]. The use of ChatGPT in education systems in developing countries is not yet widespread, but will still show a similar trend in the future.

3.1 Open Education Resources can Bring More Learning Opportunities

The concept of open education resources was first introduced by UNESCO in 2004. These resources are teaching, learning, or research materials that don't have copyright restrictions or have published intellectual property rights that allow for free use, adaptation, and distribution[12,13]. They can be utilized in various studying situations[14], and ChatGPT, a cutting-edge technology, can intelligently translate knowledge into different languages to cater to the needs of learners from diverse regions and countries. This has helped to lower the cost of education and tackle issues of inequality in education.

3.2 Providing More Relevant Learning Content for Developing Countries

Learners in developing and developed countries acquire knowledge differently. Traditional communities in developing countries have specific contexts, while education classes aim to eliminate illiteracy [15]. UNESCO Bangkok disseminates information on HIV/AIDS and crime dangers through radio dramas. In India, Bollywood movies provide pronunciation practice [16]. Technology like ChatGPT can make learning experiences more convenient and promote digital development in the education sector

3.3 Promoting the Deepening of Educational Evaluation Reform in Developing Countries

Traditional evaluation systems in developing countries rely on paper tests, but with the rise of the digital economy, creative talent is in demand. ChatGPT and other forms of personalized

learning can supplement traditional schooling, and man-machine collaboration can produce knowledge in the era of intelligence.

3.4 Help Developing Countries to Share and Supplement Educational Resources.

As shown in Fig 3, there is a gap in teaching resources between developing and developed countries So ChatGPT can help bridge that gap, it can also reduce teachers' workload, improve their professionalism, and provide objective teaching decisions.
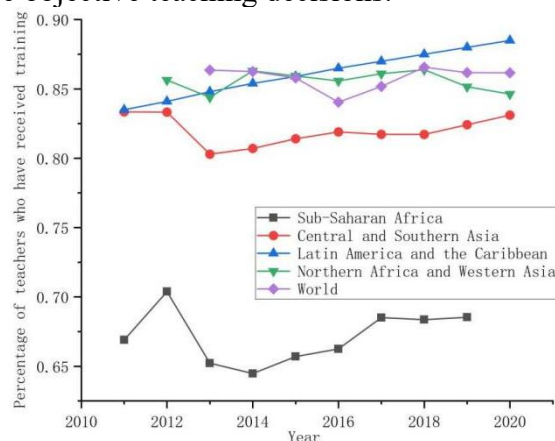

Fig. 3 Proportion of trained teachers by region from 2011 to 2020

3.5 Bring more Educational Opportunities to Minority Language-Developing Countries

ChatGPT, a learning resource, is often written in common languages like English, which can hinder students of minority languages in learning and understanding knowledge. With continuous improvement in language interoperability, ChatGPT offers more equitable educational opportunities worldwide. It can switch between various roles, allowing students to find the most suitable learning style. Statistics from TIMSS show that females have better language ability and memory, helping them learn basic arithmetic and calculation skills. Males may have better spatial visualization and reasoning skills, helping them learn abstract mathematical concepts. ChatGPT automatically adjusts information presentation based on the role set, ensuring that each student finds a suitable learning style and develops an interest in learning.

4.   Analysis of Negative Impacts ChatGPT Can Bring to Developing Countries

4.1 Cause Students to Lose the Ability to Think by Themselves

The reliability of ChatGPT's information is questionable due to the absence of source identification, making it challenging to differentiate between true and false information. This can result in gender and racial discrimination, which can have adverse effects on adolescents. As ChatGPT's functionality increases, students may become reliant on it, inhibiting independent thinking and impeding teaching evaluations. Furthermore, the use of ChatGPT may pose academic ethical risks and violate the copyright of authors, prompting educational institutions to limit its use in academic research.

4.2 Increase Education Inequality

ChatGPT offers similar resources for students and teachers from different backgrounds, but it may lead to increased inequality in actual use. Parents may guide their children through phone use, while others allow them to play games or watch TikTok. The use of ChatGPT varies depending on the user's willingness to use it. For instance, those with precise keywords for ChatGPT tend to get more complete and targeted answers. The gap in questioning ability is affected by thinking patterns and education methods, and the impact of artificial intelligence may affect groups that cannot fully

benefit from education themselves. The digital literacy gap has widened, with those who excel in education benefiting more from it.

4.3 Bring Challenges to the Ethics of Education

The use of ChatGPT may pose some challenges to the sustainable development of education, including potential data breaches, academic misconduct, and biased educational values. Data breaches could lead to tampering or misuse of students' grades, class information, and other sensitive data. While ChatGPT can improve studying efficiency, overreliance on it may result in academic misconduct like plagiarism. Recent data reveals that 89% of university students in the US use ChatGPT for homework, raising concerns [17]. Moreover, excessive dependence on ChatGPT's answers could diminish students' critical thinking abilities. If teachers rely too heavily on ChatGPT, it may neglect the humanistic care needed for students' healthy physical and mental development.

5. How can ChatGPT be used to eliminate educational barriers between developed and developing countries

ChatGPT can help eliminate education barriers for marginalized groups by providing equal access to quality resources regardless of location, gender, ethnicity, language, or culture.

5.1 Set up Aid Organizations to Help Developing Countries Improve Digital Literacy

ChatGPT, a digital technology, requires teachers and students to possess digital literacy to effectively use it. This includes skills, knowledge, and attitude, which are crucial for digital transformation in education. In developing countries, teachers and students struggle to improve their digital literacy. To promote the use of AI intelligent technology in developing countries, educational assistance in artificial intelligence, such as ChatGPT, should be included in key planning.

5.2 Help Developing Countries Limit Situations using ChatGPT for Students

ChatGPT's data storage is a valuable resource for students, but it should be used correctly. The intended purpose of ChatGPT is to assist students in answering confusing questions. However, some students may rely on it too heavily to finish their homework. This type of "learning" does not encourage critical thinking and fails to promote knowledge accumulation. It is important to educate teachers and students in developing countries on how to use ChatGPT responsibly as a helpful educational tool. They should follow ethical guidelines and academic norms, and avoid spreading false or harmful information.

5.3 Improving Ethical and Legal Regulations on the Use of Digital Technologies in Developing Countries

ChatGPT, as a technology that involves the ethical and legal issues of artificial intelligence, requires a corresponding regulatory mechanism to protect the rights of relevant groups. Government, society, industry, and other parties should jointly develop and implement a set of sound and applicable ethical legal norms to supervise and guide the use and development of ChatGPT in education. Therefore, need to help developing countries establish relevant laws and improve the value of digital technology in the education field. Therefore help developing countries standardize the use of ChatGPT to achieve improved quality of education and education equity.

6. Summary

As digital technology advances, tools like ChatGPT are becoming crucial in promoting education equity. Digitizing education is an important means of achieving this and improving educational standards. This essay examines ChatGPT's impact on educational equity in developing countries

and finds that they face numerous challenges including poverty, disease outbreaks, gender discrimination, and a shortage of technical resources. ChatGPT has two effects: it can promote the development of education systems by increasing learning opportunities, providing content, and encouraging educational reform. However, it may also lead to plagiarism and other academic issues. Therefore, this essay suggests strategies such as establishing aid organizations, standardizing usage scenarios, and strengthening legal systems to promote balanced educational development in developing countries.

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