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Influence of AIGC on Research Activity in Higher Education

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Abstract: The development of generated artificial intelligence has a revolutionary impact on higher education. The application of AIGC technology has influenced various aspects of higher education extensively. The effective interaction and mutual promotion between AIGC and traditional university education would be necessary to realize the value of higher education in the digital era. To discuss the eminent issues, the paper analyzed positive contributions and negative influences of AIGC. AIGC technology empowered teaching method reform in university courses, which include reduction of repetitive activities, rigorous knowledge acquirement and sorting, and personalized learning opportunities. Thesis writing could be facilitated, from literature review, structural and organization, and language improvement. It also promoted innovative and creative activities in university courses, with broadened knowledge base and widened information source. And then, its negative effects are also discussed. The academic ethic and legal issues could lead to intellect property controversy, the privacy of information and the possibility of plagiarism. The innovation impetus and original thinking could be hindered. In addition, assessment of course work, exam and thesis should adapt to the scenario of incorporation of AIGC with original work of the students. The countermeasure to mitigate negative effect includes transform in cultivation plan and course design; the standardization and transformation of assessment and evaluation. The development strategy should focus on the role transition, of the university, from the academic authority to a knowledge learning choice, of AIGC from substitution to complementary, so as to ensure the development of innovation and original thinking of the future university graduates.

1. Introduction

The development of generated artificial intelligence has a revolutionary impact on higher education. The application of artificial intelligence different stages of education, cover different scenarios extensively. However, the function of universities as cultural centre and innovation cultivator, the development of rationality, collective wisdom, cultural adaptability and creation requires collaborative coexistence with AIGC technology [1]. Higher education in artificial

intelligence era should insist on intrinsic value of education, focuses on ethics, ideation and creativity of the students. Meanwhile, proper instruction on the proper and reasonable application of artificial intelligence should also be provided, so as to ensure healthy development of mind and thinking of the prospect university graduates. AIGC technology entered higher education from various channels, which are reflected in the following aspects: voluntary application of the students in course work, research paper and thesis; the innovative courses concerning big model; the platform constructed by educational board and degree granting authority to test AIGC percentage in degree thesis. How to use AIGC technology effectively and improve personalized learning efficiently, the role of higher education would gradually transform from the academic authority to a knowledge learning choice. [2] The significance of university lies on the issue which could not be achieved through artificial intelligence. The complementary effect dominates the interaction and correlation of traditional university education and AIGC technology, rather than the substitution effect.

The remainder of the paper is organized as follows: the second section illustrates and elaborates empowerment of AIGC technology in course studies, thesis writing and innovation in higher education; the third section explores and explains academic ethic, legal challenges and risks and other negative effect of AIGC in innovation and thinking; the fourth section summarized and concludes the findings, and provides development prospect, countermeasure and strategy policy in the future.

2. Application of AIGC in innovation and research in higher education

2.1 AIGC and innovative course studies

There are intensive discussions of the role of AIGC in innovation and creative capabilities, which evolves its role as substitution, control of human thinking, or freedom from traditional way of thinking.

In the present cultivation scheme and teaching plan, there are several forms of creative and innovative activities. However, the creative capability of undergraduate students is limited, and the teaching procedures become a mere formality. In creative writing and term paper of undergraduate courses, plagiarism from out of date research and unprofessional websites are prevalent. With the assistance of AIGC instrument, the structural design is more organized, the thoughts are more connected, the depth is enhanced and the logical framework is improved [3]. The traditional learning and research are initiatively prompted, either from literature review or online information, the keywords and thinking framework is established according to the student, not artificial intelligence.

Personalized studies in tertiary education could also be enhanced by AIGC learning. Outside courses, lectures, without instructions from tutors, the students could achieve their personal learning through AIGC platform, which played a more complete and sufficient role than book, on line information or other traditional learning material.

In the era of digitalization and intelligence, the cultivation object of higher education should include creative capability, technological innovation capability and corporation, as well as capability critical thinking and interdisciplinary thinking. The human thinking is increasing in a linear mode, while technology developments demonstrates an exponentially inclination. The empowerment of AIGC helps traditional university education with a new and intelligible teaching method to adapt students in an economic, social and scientific world with constant technology update and innovation.

2.2 AIGC in thesis writing

The application of AIGC in thesis writing leads to reconstruction of academic research in postgraduate studies. AIGC could play different roles in different stage of thesis. Literature review and analyze is time consuming and difficult. AIGC helps to deal with massive information in a short time period, provides complete genealogy of the selected topic, while providing analysis, comparison, attribution and shortcomings of the existing research at the same time. In the ideas and structure of the thesis, AIGC could generate the subtitles of the thesis [4]. The generated table of content is compactly organized and logically appropriate, which could be much better than the framework established by individual postgraduate student. In the stage of language improvement and refinement, the powerful feature of text creation and big language model could generate more fluent and rigorous than the writings of the students.

The introduction of AIGC platform gives rise to various aspects of revolutionary changes on thesis writing. The interaction of academic research group is partially substituted by individual interaction with artificial intelligence. Multilateral communication such as discussion seminars invited a new guest, which is not a research individual but a vigorous comprehensive machine.

Creative writing could be facilitated by AIGC technology. Creative writing comprises a large proportion in university courses. Whether in social science, natural science, engineering or medicine, academic research report, program file, papers and thesis are necessary for the summarizing and presentation of learning and research achievement. Academic research papers have its unique writing style and organize structure, which is unfamiliar for students. With the assistance of AIGC, big model provides a common structure to ensure professionalism of the paper, while the content could be filled out by student themselves with original work.

2.3 Empowerment and teaching method reform

2.3.1 Empowerment of AIGC in teaching

The empowerment of AIGC technology in university teaching is reflected in several aspects, in reduction of repetitive work, in knowledge acquirement and sorting, and in personalized studies. AIGC technology could help students and lecturers to be freed from simple repetitive tasks. It also facilitates knowledge requirement. With vigorous functions of massive data training and generative large model, the knowledge stock is deep, up to date and massive. Unlike online search engine, the facilitation of knowledge requirement with AIGC has the additional function of extraction and sorting [5]. Unlike online searching, the information from AIGC is already extracted, summarized and sorted, with professional judgment, clear hierarchy and logical coherence.

Personalized studies could be tailored with AIGC for each individual student, which could be an intelligent version of teaching in accordance with personal aptitude. The depth and level of difficulty of the professional knowledge in university is much higher than the secondary education period. The courses could include massive information but much lower direct tutoring. One lecturer could be facing dozens or even hundreds of students. The learning capability and knowledge base of each student is dispersed. The large gap could be catch up by personalized study with the assistance of AIGC technology.

2.3.2 AIGC and teaching method reform

The integration of teaching and learning with artificial intelligence technology should be dealt with, so as to enhance learning efficiency and improve learning achievement. The structural reform of disciplinary and major construction is also required to adapt to incorporate artificial intelligence

with conventional disciplinary system. The optimization of staff team is imminently required to tailor to the cultivation plan for the new intelligent era.

For lecturers and tutors in universities, AIGC technology could help to understand requirements, interests and capabilities of the students, so as to provide personalized learning plans to achieve higher learning efficient in accordance with their aptitude. Course evaluation and test assessment is also accelerated by AIGC technology, in time feedback of learning situation and reported shortcomings help to improve learning efficiency. For students, the complementary role of AIGC technology provides massive learning materials, up to date and accurate information resource, and easy channel of accessibility and sharing. For universities, AIGC technology contributes to bridge the gaps amongst different universities in different region [6]. High quality educational resource could be accessible for all, with breakdown the geographical and economical limits in small universities in less developed area with weak industrial base.

3. Challenge and risk of AIGC in higher education

3.1 Ethics and legal challenge

Concerning academic ethics, the degree management policy stipulate strictly against plagiarism. Basically, the generated contents are based on existing research papers, which embedded with potential risk of plagiarism. Another risk is uncertainty in the output of AI technology, which could lead to biased or false content of the student coursework, term paper or thesis. In addition to the negative influence on the students from the false information, the publication, circulation and open access of students' work would disturb educational, academic and industrial development environment.

Privacy and security issues could rise from the collection and storage of mass personal information from AIGC technology, includes learning behavior and student information. The law of intellectual property requires improvement and revision to adapt the new situation, so as to define and specify the ownership of intellectual property of the AI generated papers, books and other academic products.

There is a conflict between data prediction and date equality. As the latest digital technology, the deep integration of AIGC with higher education, learning method reform and studying mode has huge advantage in better funded institutions, prominent universities and developed regions. The inequality of education could be increased potentially. The world wide cooperation is demanded to tackle with the global crisis of educational equality and improve educational quality. The potential uncertainty lies on the digital divide, which exists in seemingly fair big model system. Outstanding students in prominent institutions are more likely to gain access to high quality big data learning system, obtain better resource and thorough training. The double edged effect of digital technology should be dealt with through the combination of technology and individual.

There is a paradox of technology and education, between liberation and control of human beings from AI. The significance of new technology such as AIGC should be the liberation of human beings, not control and substitution. Discrete and skeptical views of conventional educators in universities would eventually give way to the development of AIGC technology. Human thinking is driven by artificial intelligence or controlled by machine could become reality. While people with strong self-discipline and independent thinking ability could use the technology positively, most people are lacking self discipline or independent thinking, their thoughts and ideas could be substituted by AIGC. Moreover, if the technology is mastered by a small group of technological elites, the potential risk of manipulating knowledge production through core technologies is possible, thereby affecting public learning and cognition. The serious challenge to human learning and cognition indicates that with the advancement of technology there are hidden concerns about

the public data security and talent cultivation.

3.2 Negative influence on original thinking

One of the problem is the over dependency of the students on AIGC instrument. Habitual dependency on intelligent output of the big model, could deprive the initiative and original thinking of the students. In the worst scenario, the university could lose its role in enlightenment, knowledge seeking, cultural center and creative foster, to become the mover of AI instead. The exercise, teamwork, term paper or open book examination could be finished via ChatGPT, which reflects nothing about the learning achievement of the students [7]. Universities in different countries have taken measures to tackle the problem. Several prominent universities in Europe and North America had forbidden ChatGPT in university campus.

The introduction of AIGC in university education gives rise to serious issue of the educational and innovative role of the university. The authority of the professors is challenged. The teaching-studying process is interrupted. The orthodoxy of the traditional role of knowledge centre of university is undermined. There is a conflict between easy access and innovation. The essence of education is the cultivation of human beings, with creative capacity and critical thinking, which is achieved through constant recognition and internalization. Readily provided answers from AIGC platform such as ChatGPT could not achieve the afore-mentioned capability.

3.3 Lower initiative and creative capability

The collection and acquirement cost of knowledge is drastically reduced by AIGC technology. Generally speaking, it indicates more learning opportunities, increased study choices and longer learning time. However, learning autonomy does not necessarily lead to learning initiation and higher efficiency. The conflict between learning autonomy and initiation is reflected in convenience combined with laziness, which indicate less learning input and worsened efficiency. The prevalence of informal learning demands higher degree of initiation of the individual student.

The conflict between learning fragmentation and deep thinking capability is the result of frequently used quickly answered AIGC technology. Over independency on artificial intelligence instruments could resulted from frequent usage of AIGC technology, which in turn lowered deep thinking and independent thinking capability. For one reason, fragmented learning interrupted deep reading and deep thinking. For another reason, fast answers lowered the necessity of deep thinking, which could lead to narrow vision problem.

Algorism and data utilized in AIGC could error or bias, which inevitably exists in any kind of platform, which results in uncertainty of the generated content. The biased and erroneous output generated from the uncertainty could have negative influence on academic decision of the researchers and the students.

3.4 Obscure assessment criterion

The degree paper is the achievement of postgraduate studies, the result of learning and research for several years, the evaluation of academic capability and the criterion for conferring the degree. The academic value of AI generated content is less than satisfactory for postgraduate thesis. Thesis with the assistance of AIGC lacks objectivity in evaluation, which renders paper reviewers and degree committee helpless in determined the value of the paper and the decision in degree granting. The quality of the thesis would be difficult to judge. While a paper indicate elegance in language and perfection organization, it could be mimic of individual research by a machine, while the effort of the students is scanty.

4. Conclusions and policy indications

4.1 Conclusions

The development of generated artificial intelligence has a revolutionary impact on higher education. The application of artificial intelligence has penetrated different aspects of higher education extensively. The function of universities as the center of thinking, creation and frontier knowledge indicates the revolutionary transformation of higher education. The effective interaction and mutual promotion between AIGC and traditional university education would be necessary to achieve the development of rationality, collective wisdom, cultural adaptability and creation collaborative. In the era of constant technology upgrading, universities should hold on to their intrinsic value, focuses on ethics, ideation and creativity of the students. Meanwhile, proper tutoring on the appropriate and reasonable application of artificial intelligence should also be provided, so as to ensure healthy development of mind and thinking of the prospect university graduates.

To discuss the eminent issues and answer the afore-mentioned questions, the paper analyzed positive effects of AIGC. AIGC technology empowered teaching method reform in university courses, which include reduction of repetitive activities, rigorous knowledge acquirement and sorting, and personalized learning opportunities. Thesis writing could be facilitated, from literature review, structural and organization, and language improvement. It also promoted innovative and creative activities in university courses, with broadened knowledge base and widened information source. And then, its negative effects are also discussed. The academic ethic and legal issues could lead to intellect property controversy, the privacy of information and the possibility of plagiarism. The innovation impetus and original thinking could be hindered. In addition, assessment of course work, exam and thesis should adapt to the scenario of incorporation of AIGC with original work of the students.

4.2 Strategy and countermeasure

The countermeasure to mitigate negative effect includes transform in cultivation plan and course design; the standardization and transformation of assessment and evaluation. As for future development and policy enlightenment, most eminent task would be that the standardization and stipulation of AIGC application in degree thesis. The platform should be constructed to evaluate the participation of AIGC in the content of the degree papers. The prevalent standard in universities in Zhejiang Province is lower than 30%. However, subjects and types of research attribute heavily in the testing results. For example, graduate design in engineering conveys significantly higher percentage, while the design is original. The assessment method and new testing software could provide an objective evaluation.

The development strategy should focus on the role transition, of the university, from the academic authority to a knowledge learning choice, of AIGC from substitution to complementary. The significance of university lies on the issue which could not be achieved through artificial intelligence. The complementary effect dominates the interaction and correlation of traditional university education and AIGC technology, rather than the substitution effect [8]. The role of higher education would gradually transform from the academic authority to a knowledge learning choice.

In the future, the value of higher education could be realized better with the assistance of AIGC, while universities ensure improvement in original thinking, critical thinking, creative and innovative capacity, with constant development of collective wisdom in the category of ethical and social welfare.

References

[1] Xiaojiao Chen, Zhebing Hu, Chengliang Wang, Empowering education development through AIGC: A systematic literature review, Education and Information Technologies, Volume 29, 2024, pages 17485–17537.
[2] Hexiang Liu, 'Worldview' of the AIGC systems: stability, tendency and polarization, AI & SOCIETY, Volume 40, pages 2493–2506, (2025)
[3] Yulu Cui, Hai Zhang, Can student accurately identify artificial intelligence generated content? an exploration of AIGC credibility from user perspective in education, Education and Information Technologies, Volume 30, pages 16321–16346, (2025)
[4] Kai Guo, Chengyuan Zhan, Xiang Li, Factors influencing Chinese college students' intention to use AIGC: a study based on the UTAUT model, International Journal of System Assurance Engineering and Management, Volume 16, pages 1663–1677, (2025)
[5] Xiuhong Li, Xiaoying Tang, Xiuhui Zheng, Yifan Huang, Yiqing Tu, Exploring the AIGC-driven co-creation model in art and design education: insights from a student workshop and exhibition, International Journal of Technology and Design Education, October 2025
[6] Dongxuan Wang, Yu Liu, Xin Jing, Qi Liu, Qingjiao Lu, Catalyst for future education: An empirical study on the Impact of artificial intelligence generated content on college students' innovation ability and autonomous learning, Education and Information Technology, Volume 30, pages 9949–9968, (2025)
[7] Xinrui Sui, Qicong Lin, Qi Wang, Haipeng Wan, Who will benefit from AIGC: An empirical study on the intentions to use artificial intelligence generated content in higher education, Education and Information Technologies, Volume 30, pages 20627–20651, (2025)
[8] Zhang Yan, Tang Qianjun, Integrating AI-generated content tools in higher education: a comparative analysis of interdisciplinary learning outcomes, Scientific Reports, volume 15, 2025, Article number: 25802.