Innovative Pathways for Digitally Empowered College English Curriculum in Pharmaceutical Institutions

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Abstract. This research delves into the digitally empowered approach tailored for the College English curriculum in pharmaceutical institutions. By examining the integration of digital technologies into teaching scenarios, learning materials, and classroom assessments, the research aims to reveal the impacts of digital transformation on enhancing learning outcomes and fostering the development of versatile talents.

Keywords: digitally empowered, English curriculum, pharmaceutical.

1   Introduction

As the worldwide digital transformation surges, society in its entirety is embracing the digital era with unprecedented speed. When the emerging technologies such as AI, big data, 5G, VR/AR/MR are integrated and applied, human society is stepping onto the threshold of a new round of changes[1].

In education, these technologies significantly broadened the boundaries of teaching resources, enriched instructional methodologies, and propelled education towards greater personalization, intelligence, and efficiency[2].Although previous teaching reforms have made many attempts and innovations in teaching philosophies and models, under the wave of digital transformation, the reform must reach a deeper level and reshape the basic infrastructure of teaching facilities, methodologies, and environment to achieve fundamental changes. This implies optimizing the application of existing technologies to create a more enriching, interactive, and efficient learning experience for students. This study delves into the essence of digital transformation and the subsequent reform of English courses within pharmaceutical institutions. Its primary objective is to analyze the profound implications of digital transformation, with the ultimate goal of crafting a scientific, rational, and adaptable framework for English learning in the digital era.

2   Connotations of Digital Transformation

The essence of educational digital transformation lies in leveraging digital technologies to innovate and upgrade traditional teaching approaches, management approaches, and evaluation systems to achieve digitalization, personalization, and intelligence in education. At international level, UNESCO, ITU, and UNICEF have jointly released the report "Digital Transformation of Education: Connecting Schools, Empowering Learners," which focuses on digital connectivity and empowerment in education[3]. The European Union, has released "Digital Education Action Plan (2021-2027)," outlining two strategic goals, which are building digital education ecosystems and enhancing digital skills to achieve global digital transformation[4]. In China, digital transformation in education has also received high attention. Early in 2021, Shanghai was approved as the pilot region by the Ministry of Education[3], suggesting China is exploring new paths for educational digitization attentively. In this context, Chinese scholars had many discussions in recent years. For example, Zhu Zhiting discussed the theoretical framework, logic and opportunities of digital transformation in education[3,5], Guo Yunyun discussed application, trend and challenges of AI in college English teaching[6], Zhang Jingyuan discussed the innovative paths of College English Teaching under the Background of Digital Transformation[7], Zhang Boke explored and innovated teaching approach in college English writing courses in the digital era[8].

3   Learning Objectives of English Courses in Pharmaceutical Institutions

The learning objectives are usually designed to cultivate talents who possess both a solid foundation in English, such as the ability to understand and communicate effectively in English in professional settings, proficiency in reading and comprehending complex scientific literature and research papers, and the capacity to write and translate professional reports and research proposals, and cross-cultural communication skills, academic and research capabilities, innovative and critical thinking, and so forth[9]. However, English teaching is confronting the following challenges. To begin with, students often have diverse proficiency levels and learning motivations, making it difficult to design a one-size-fits-all teaching approach. Secondly, the traditional teaching methods may not fully engage students in an era dominated by digital media. Slower pace and limited scope of traditional methods make the learning experience seem dull and outdated. Moreover, what students need, such as the interpretation of terminologies in English, requires targeted teaching materials and methods. However, English teachers, primarily English majors, are not able of mastering professional expertise in the pharmaceutical field or teaching professional pharmacy English.

4   An Exploration of a Teaching Research Mode Empowered by Digitalization

4.1   Teaching Scenarios Empowered by Digitalization

Teaching scenarios for English classes typically consist of traditional classrooms and multimedia classrooms. The wave of digital transformation in education has triggered the advent of smart classrooms, which have revolutionized the educational landscape.

In recent years, our university is furnished with a growing number of smart classrooms, and the teachers are encouraged to employ them for teaching practice. This study conducted experiments in smart classrooms and carried out many learning activities that were unable to be completed in traditional multimedia classrooms. In the smart classrooms, the instructional materials are shared with individual groups, enabling students to work collaboratively within their respective teams. Each team view the slides shared by the teacher on their designated group screens, and they can render their answers directly on those screens. This helps to foster an interactive and engaging learning experience among students as evidenced by the teachers' reports indicating that the arrangement of students in circular groups, coupled with the use of group screens, significantly enhance interaction and collaboration among students. Besides, it makes students who used to sit at the back of the classroom get more involved in the classroom.

In addition, the interactive whiteboard or the touchscreen is utilized frequently by the teachers, too. They annotate, highlight, and draw directly on the screen when explaining grammar points or conducting text analysis and send them to the students at any time. Additional features such as voice transcription and classroom voting also help to enhance students' attention and participation, drawing more students away from distraction. It is also notable that teachers are capable of recording and reviewing the entire teaching session in the smart classroom, which serves as invaluable resources for teachers' self-reflection both during and after classes. This facilitates precise adjustments to their teaching pace and strategies to meet the needs of all learners.

4.2   Learning Materials Empowered by Digitalization

In this research model, tradition learning materials are basically transformed into digital formats in order to facilitate more flexible, accessible, and engaging learning experience. Specifically, we convert textbooks, lectures, notes, and other related materials into digital files that can be accessed and interacted via electronic devices such as computers, tablets, and smartphones. Furthermore, we have been carefully implementing a teaching program, integrating high-quality digital learning materials from the U-Campus intelligent teaching platform of FLTRP and Massive Open Online Courses (MOOCs) from both provincial and national levels, into our daily teaching practice. By releasing targeted learning tasks before and after class, we encourage students to use these digital materials for preview and review, guiding the students to consolidate and expand their learning. It is worthy to mention that in the building of digital teaching materials, our teachers particularly select and edit resources related to students' research field, including but not limited to medicine, health, pharmaceutics, biomedical

science and etc. With the assistance of AI and other digital technologies, these resources are transformed into audio clips, short videos, and micro-lectures, offering students a wealth of listening, speaking, and translation materials that integrate the latest advancements and trends within their fields of study. This approach which fosters interdisciplinary connections intends to ignite their curiosity in their research area and lay a foundation for their future academic pursuits and career aspirations.

In addition, our school attaches great importance to inter-institutional cooperation and resource sharing. Annually, both teachers and students are encouraged to engage in cross-institutional elective courses offered on prestigious platforms such as China University MOOCs and other high-quality course providers within our province. By successfully completing these courses, students acquire academic credits. They are motivated to select both basic English courses and advanced English courses such as Academic English Reading, Thesis and Dissertation Writing in Academic English, Medical English, or even professional courses in their research field like Medicinal Chemistry, Pharmacology, and Pharmaceutical Analysis conducted in English. Notably, the teachers, especially the younger ones, are encouraged to take part in this "interdisciplinary online Learning" as well, in order to be well-prepared for English teaching for Specific Purposes (ESP) in the students' research domain. Both students and teachers reap benefits from the broad spectrum of academic exchanges. For one thing, these excellent courses provide both the students and teachers with invaluable exposure to the unique teaching methodologies and groundbreaking research achievements of diverse universities, sparking innovative thinking and significantly broadening their horizon. For another, it promotes communication and collaboration among universities and optimizes the availability of the best teaching resources.

4.3   Class Assessments Empowered by Digitalization

Amidst the tide of digital transformation, pharmaceutical institutions like our university have embraced digitalization and constructed a highly personalized, differentiated, and scientific teaching evaluation system for our English courses. This system endeavors to map students' growth trajectories through advanced technologies such as information tracking, digital retrospective analysis, and scientific monitoring and evaluation. Every detail of students' learning journey, including the learning progress, preferences, challenges, and rates of improvement are recorded and analyzed. At the same time, the scientific monitoring and evaluation system can automatically generate detailed evaluation reports, providing accurate feedback for teachers and specific improvement suggestions for students.

It is worth noting that intelligent assessment system also functions effectively in conducting learning activities. In the traditional classroom, teachers often have to wait for students to submit their compositions or translations after class for feedback. This process is time-consuming and inefficient. However, with the rise of digital empowerment, especially the application of artificial intelligence grading systems such as Iwrite and Itranslate, learning and grading are revolutionized. Now, once students complete their translation or writing exercises, they upload them to the intelligent system instantly and they would receive detailed feedback reports in almost no time. These

reports not only cover multiple dimensions such as language accuracy, vocabulary richness, and sentence structure, but also provide personalized improvement suggestions for students. Teachers, on the other hand, is able to review students' works and reports from the platform immediately and is able to deliver instant in-class comments to each student in class. Teachers also motivate students to conduct peer assessment on the grading system, through which they not only discover strengths and weaknesses among each other but also have a better idea of the criteria in translation and writing. Remarkably, the emergence of advanced AI technologies such as ChatGPT in the past year has brought unprecedented opportunities and challenges to English teaching, particularly in translation and writing classes. Therefore, in this context, our teachers, instead of present model essays, encourage students to compare translation or writing examples generated by different AI platforms for evaluation in group discussions and presentations. Students show strong interest in the pieces produced by ChatGPT and engage in the discussions attentively. A discussion like this not only broadens students' horizon but also enhances their understanding of the diversity and creativity in translation and writing.

Evidently, the introduction of digital teaching methodologies, particularly the integrated application of artificial intelligence grading systems and AI technologies, has made in-class evaluation more scientific, efficient, and engaging. It not only improves class efficiency but also fosters profound interactions and shared growth between teachers and students.

5   The Learning Outcomes

To achieve an overall evaluation of the learning outcomes, we carefully executed an investigation, combining questionnaire surveys with in-depth interviews as research methods. In the questionnaire survey, we designed a detailed and well-structured questionnaire to capture students' feedback on digital teaching and learning strategies. 80 valid responses were successfully retrieved. The results revealed an overwhelming acceptance among students towards the introduction of digital-empowerment in English courses.

To delve deeper into more specific impacts, we organized a collective interview and individual interview respectively, each tailored to explore the learning outcomes of the innovative approach. Students were randomly selected to participate, with each interview lasting approximately forty minutes. Throughout the interviews, students shared their insights and personal feelings, acknowledging the superiority of the digitalization empowered learning experience. They stated that the new experience yielded significantly more pronounced advantages and achievements compared to the traditional learning pattern they were accustomed to. In the traditional classroom, students often rely heavily on the guidance of teachers. However, with the integration of digital resources and approach, they were empowered to take control of their own learning journey in setting their own learning goals, managing their time effectively, and choosing the most suitable learning resources for their individual needs. This fosters a sense of autonomy and self-motivation, which are essential qualities for lifelong learning and

professional development. In addition, students also highlighted the pivotal role that the digital-empowerment plays in broadening learning channels. In the traditional classroom, textbooks and the teachers' slides are the major source of learning, however, in the smart classroom, they are widely open to a world of multimedia information which are intriguing, engaging and enlightening. Furthermore, they had enormous interest in the learning experience in the smart classroom, where interactive whiteboards, touch screens, and digital tablets replace traditional blackboards, allowing teachers to present lessons in more vivid, animated ways.

6   Conclusion

This study has transformed the traditional teaching landscape by integrating digital empowerment into various aspects of the learning process. The successful integration underscores the significance of fostering continuous innovation in the digital era, ensuring that education keeps pace with the evolving opportunities and demands presented by technological advancements.

Acknowledgment

References

1. Zhu Zhiting, Hu Jiao. Digital Transformation and Integrated Innovation in Foreign Language Education[J]. Computer-Assisted Foreign Language Education, 2022(4).
2. Matthias.K.et al. The Digital Transformation of Higher Education[M]. Global Learning Council & Deutscher Akademischer Austauschdienst,2021.
3. Zhu Zhiting, Hu Jiao. The Theoretical Framework of Educational Digital Transformation[J]. Journal of the Chinese Society of Education, 2022(4).
4. European Commission. Digital education action plan 2021-2027[EB/OL].Retrieved from https: / /eur-lex. europa. eu /legal-content /EN/TXT/PDF/? uri = CELEX: 52020DC0624& from=EN,2020.
5. Zhu Zhiting, Hu Jiao. The Practical Logic and Development Opportunities of Educational Digital Transformation[J]. Audio-Visual Education, 2022b(1).
6. Guo Yunyun, Yu Hao, He Hua. Artificial Intelligence Empowering Foreign Language Teaching: Applications, Trends and Challenges[J]. Contemporary Teaching and Research Forum, 2024(10).
7. Zhang Jingyuan, Zhao Hongyan. Innovative Approaches to College English Teaching under the Background of Digital Transformation[J]. Foreign Language Research, 2024(2).
8. Zhang Baike, Yi Ming. Research on Curriculum Reform and Teaching Mode Innovation Enabled by Digital Technology[J]. Journal of the Chinese Society of Education, 2023(12).
9. Teaching Guidelines for College English of the University Foreign Language Teaching Steering Committee of the Ministry of Education. Teaching Guidelines for College English [M]. Beijing: Higher Education Press, 2020: 6.