Thoughts on the Professional Growth of University Teachers in Digital Era

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The development of information and technology has changed education namely teaching and learning. This paper analyzed the main characteristic of university teachers' professional growth in digital era by theoretically analyzing the impact on education of information and technology. In the new era, teachers should assume more abundant roles, such as lecturer in the classroom environment, model of students' life, mentor/instructor, teaching evaluator, resource developer, planner, leader and manager, etc. Teachers in the digital era should own the qualities of "foundation", "growth", and "expansion". On this basis, several suggestions for promotion of teachers' professional growth have been given. It is necessary to explore the way of professional growth for university teachers in the IT age by constructing a UGIT collaborative "front and behind continued" teacher cultivation mechanism; exploring a practice-oriented, precise, scientific and demand-driven cultivation model; and strengthening the training of teachers' IT application ability.

Keywords: information and technology, higher education, professional growth of teachers, cultivation mechanism

Introduction

The outbreak of COVID-19 in 2019 has brought unprecedented impact to all countries or regions in the world. This pandemic has promoted the comprehensive transition of all kinds of education at all levels, including higher education, from traditional teaching mode to online teaching in the form of mandatory institutional change. Whether the pandemic is under control or not, online education will become a fixed teaching mode in higher education, and higher education can never go back to the past. As described in the *2021 EDUCAUSE Horizon Report*: "the COVID-19 pandemic has transformed the higher education landscape... the higher education may never be the same in some important ways (good or bad)" (Pelletier et al., 2021, p. 4).

In response to the impact of the pandemic on higher education, China's Ministry of Education issued a guideline on online teaching in early February, which is to urge universities across the country to "suspend classes but not teaching or studying". Under this initiative, universities across the country have organized the largest online teaching program with the largest number of courses and students in a very short time. As of May 2020, 1,454 universities (54.09%) nationwide had launched online teaching, and 1.07 mil. courses had been taught online by 1.03 mil. teachers (59.20%). 17.75 mil. undergraduate students (58.56%) took part in online learning[1]. There is no doubt that in times of pandemic or other extraordinary times, online education is an

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[1] Statistic of the Chinese Ministry of Education 2021. [Online]. Available: http://www.moe.gov.cn/.

important and useful way to ensure the orderly operation of university teaching, and it is also becoming a new form of education that is widely accepted by university teachers and students.

In 2018, the Ministry of Education put forward the "Double Ten Thousand Plans"[2] for the construction of first-class courses, which require the elimination of "water class" and the creation of "golden class" to promote the quality of teaching. It also calls for "taking the high level and quality of talent cultivation as the primary and important index for evaluating universities". The formulation of the new education policy highlights the attention of Chinese Ministry of Education to current higher education. "Internet +" education has a profound and subversive impact on higher education. The extensive promotion of new technologies and the mining as well as the analysis of big data directly take into account the subjective feelings, immediate experience and learning effectiveness of learners, which promotes higher education to pay more and more attention to the individualized needs of learners. The main responsibility of higher education is to train and transport all kinds of talents for social construction and economic development, and excellent teachers are the necessary condition for the cultivation of excellent talents. With the development of higher education from popularization to high quality, as well as more and more in-depth and comprehensive penetration of information technology into the classroom, a rich path for promoting the professional development of higher education teachers would be provided.

Therefore, this paper aims to analyze the main characteristic of university teachers' professional growth in digital era by theoretically analyzing the impact on education of information and technology. On this basis, several suggestions for promotion of teachers' professional growth would be given.

New Definition of the Role of University Teachers in the Information Age

The most basic element of the effectiveness of higher education institutions is the development of teachers, and teachers are the fundamental support for the operation of the universities. Teacher professional growth plays an important role in many higher education systems around the world. At present, there are two main needs for the professional growth of university teachers: One is the improvement of teachers' professional teaching ability; and the second is that teachers should reform and innovate their own teaching in response to the impact of the internet on teaching. In the past time, great changes have taken place in higher education, such as advocating integrated teaching, problem-based learning, re-recognition of students' status, systematic curriculum planning, core courses and elective courses, etc. The transformation of education makes teachers face the challenges of the decline of "knowledge authority", as well as the pressure of role transformation and the impact of multi-cultural values. Teacher should be responsible for the management of multiple new roles in many fields like practical teaching, group teaching, problem counseling, case discussion and so on. Teachers are required to assume more new roles and make more efforts to advance the better realization of educational goals under the change of education and teaching paradigm which is brought by technological progress.

The new learning paradigm has undergone a qualitative change in information and technology era, and the rise of "digital education" is redefining the roles of teachers and students. The "new learning paradigm" is learner-centered, in which the personality of learners is fully respected and learning behavior is more

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[2] "Double Ten Thousand Plans": namely the "double first-class specialty" plan of the Ministry of Education, refers to the implementation of first-class specialty construction by the Ministry of Education with the goal of "facing the future, meeting the needs, leading development, advanced ideas and strong guarantee", and building 10,000 national first-class undergraduate majors and 10,000 provincial first-class undergraduate majors.

autonomous and free. Teachers should change the traditional identity into knowledge instructor in teaching (Yang, 2017). Under the new educational environment, university teachers should have more abundant roles: the lecturer in class—the information provider and teaching promoter in theoretical as well as practical teaching; good example to students' life—the example of profession as well as teaching and educating; mentors/instructors—mentors who provide help for students' autonomous learning life as well as the assistance consultants and emotional caregivers for students, etc.; teaching evaluators—arrange examinations for student, evaluating courses and teaching; resource developers—develop resources and materials for teaching and learning, improve the quality of teaching and provide students with convenient learning conditions through various learning channels such as internet and digital means; develop and evaluate new curricula, learn and research new projects in related to education; planner—the person who organizes and plans the course; leaders and managers—manage the class effectively, lead and organize all kinds of teaching and learning activities. In digital era, we should not focus on "learning by using new media" but on "new learning by using media". When mechanical education with standard answers is more completed by technical means, teachers are more engaged in creative and artistic imaginative activities.

New Connotations of University Teachers' Professional Literacy in the Information and Technology Era

Teachers are the foundation of education, which means that the quality of teachers determines the quality of talents, and the teaching staff is the core indicator of the quality of higher education. Teachers in future should have all-round qualities of "knowledge, emotion, will and action", which are manifested in profound professional background, concept and ability of lifelong learning, global vision and good social service consciousness. It could be embodied in three aspects: foundation, growth, and expansion.

"Foundation": The future teacher must be oriented to the needs of society, and whether it can meet the actual needs or not will be the key indicator to measure the success of the teaching. As a necessary condition for "teaching well", teachers should be professionally educated, which means that they should own systematic professional knowledge and skills, and be able to apply them effectively in class. The professional quality of university teachers requires not only the quality of basic subject knowledge, but also the quality of professional skills, psychological quality and unique professional feelings. At the same time, future teachers should be the digital teachers who can meet the requirements of training new talents in the information and technology age, which are mainly embodied in three aspects: the "skill" of use digital equipment and resources, the "art" of information-based teaching design and the "academic" of educational science research (Song & Shi, 2017). Teachers should have sufficient application ability, basic theoretical knowledge and skills of information and technology. They should have the ability of information-based instructional design and be able to effectively integrate curriculum content with information and technology. They should make full use of various digital means to design courses and develop teaching resources.

"Growth": In the information environment, more comprehensive knowledge is needed to solve the problems arising in the process of work, so teachers can no longer rely on one skill for the whole career. Teachers usually accompany students for more than ten years, which is an important stage and period of students' personal learning, personalized development, social growth and career development. Therefore, today's teachers should be better at teaching and learning than ever before. Furthermore, the interaction between students and teachers in the class will more frequently happen in the information and technology era.

This kind of interactive class is more and more recognized by students. However, teachers are higher required in interactive class than in the traditional face-to-face class. It is necessary for teacher to communicate effectively with students at all times.

In addition, the rapid development of the information and technology has turned the media to be an important medium and means for young people to acquire knowledge in addition to family and school education. Today's generation is even more convenient than teachers in acquiring and contacting all kinds of knowledge and information, and teachers are far from meeting the needs of students' growth with their "one" knowledge. Thus, teachers should have the ability of vertical lifelong learning and sustainable development. From the stage and process of teachers' professional growth, it is also necessary for teachers to obtain the consciousness and ability of lifelong learning and sustainable development. They should keep pace with the times, constantly learn the latest professional developments and update their knowledge structure in time.

"Expansion": University teachers should become situational and transferable, which means that they should be able to adapt to rapidly changed teaching situations. At present, the diversification of social values makes the class more complex and changeable that teachers are facing a broader and more diverse professional environment. Teachers need to be able to quickly understand, accept, and adapt to new educational and teaching behaviors and situations. From the transfer perspective, teachers' professional competence is formed through long-term learning and practice, which means that once it is formed, it will be internalized into teachers' stable psychological characteristics and once encountering similar situations in education and teaching, the transfer of competence will be triggered independently and the problems would be effectively solved (Song & Shi, 2017). Teachers should have the knowledge of "migration" as well as the pluralism, multi-faceted and systematic thinking mode. In the meantime, the consciousness and ability of critical thinking on digital technology are all necessary. Meanwhile, it will be beneficial when teachers acquire the ability of knowledge integration and scientific research in horizontal interdisciplinary teaching. Thus, teachers in the new era not only "could teach" and "teach well", they should also be able to "draw inferences" from knowledge, skills and abilities.

Thinking on the Cooperative Mechanism of Cultivation of University Teachers in the Information and Technology Age

To build a powerful country in education and run a satisfactory education for the people, a large-scale and high-quality professional teaching staff must be built. In "China's Education Modernization 2035", which was published in early 2019, it had listed "building a high-quality, professional and innovative teachers staff" as one of the ten strategic tasks to promote the modernization of Chinese education (CPC Central Committee and State Council, 2019). Teacher education in Chinese universities has ushered in an unprecedented period. It should be deeply considered and paid attention to at present how to advance the development of teaching profession to make them ready for the rapid changes and paradigm shifts in higher education in the information and technology era so that they could maintain their vitality now and in the future.

First, Constructing a UGIT Collaborative "Front and Behind Continued" Teacher Cultivation Mechanism

We should actively explore the UGIT ("University-Government-Teaching and Research Institution-Teachers") collaborative education mechanism, and give full play to the role of universities, local

governments, teaching and research institutions and other relevant departments in teacher cultivation. Teachers' "right to speak" should be fully paid attention to so that the real needs and requirements of teachers would be really concerned. We should let "teachers be among it". Under these circumstances, teachers' subjective initiative in promoting their professional growth would be mobilized.

To coordinate the all-round cooperation among universities, local governments, educational and research institutions in the training objectives, curriculum system, curriculum resources, practice bases, teaching research and cultivation quality evaluation in teacher's professional growth of their before and after service. Curriculum convergence and credit mutual recognition can be realized by establishing the credit bank. In this way, a convergence mechanism of post-service teacher training and academic education could be established, and the "front and behind continued" teacher training mode with multi-level and multi-dimensional integration of pre-service, in-service, and post-service can be created.

Second, Exploring a Practice-Oriented, Precise, Scientific and Demand-Driven Cultivation Mode

At present, the teaching staff in Chinese universities is becoming younger and younger. A majority of the young doctors/teachers lack the experience of education service. They own relatively less the ability to analyze and solve practical problems in teaching, which means that it is relatively difficult for them to do their educational work in a short time (Xiong, 2017, pp. 88-89). Therefore, the reform of teacher education should be closely combined with the needs of higher education reform. When teachers concern the needs of students' development and innovate teaching methods, they could quickly integrate their professional teaching theory into teaching practice. Therefore, it is necessary to construct a practice-oriented and demand-driven cultivation mode for university teachers. The pre-service cultivation and post-service development of teachers training should be integrated. During the pre-service, teachers are provided with diversified practical internship opportunities, and "prospective teachers" should regularly enter universities to participate in various seminars and classes. During the post-service, some strategies could be adopted like "old lead new" and "youth tutorial"; other practices could be as "provide them practice mentors who are familiar with the teaching environment of universities and have rich experience in educational practice".

At the same time, we should formulate a clear assessment system and incentive policies to promote new teachers to quickly familiarize themselves with educational practice and enhance their ability to guide, analyze and solve practical problems in education and teaching. Based on the new requirements and capability criteria, a scientific and precise cultivation path for university teachers should be explored, which should be more precise, scientific and demand-driven in order to improve the scientific level of university teacher's education.

Third, Strengthen the Training of Teachers' IT Application Ability

Instead of a goal, digital technology is merely a medium. In fact, the use of any educational technology depends on the effective application of teachers on it. In the information age, the professional growth of university teachers itself includes the development of the application ability of using digital teaching facilities and resources (Lin, Li, & Huang, 2017). At present, university teachers generally have the awareness and demand of using digital teaching resources and technology, but on the whole, their skills lag behind the process of technology development (Tang & Yang, 2020). For instance, the pandemic has prompted most of the university teachers to carry out online teaching activities, yet the level of teachers' digital abilities is relatively different. In a number of Chinese surveys, most teachers seemed to teach through the online platform as well as use lots of digital teaching resources, but they still apply the traditional teaching methods and evaluation

standards (Zhang, Köhler, & Lucke, 2020). Therefore, the requirements and evaluation criteria of teacher training should be issued to meet the needs of the development of information and technology. Moreover, the evaluation system of teachers' core literacy and ability should be explored. Guided by the ability of "foundation", "growth", and "expansion", the core "index" related to teachers' professional growth should be developed to promote the construction of new teachers' ability standards actively in the digital age. In view of these standards, we should provide teachers with relevant training. They are encouraged to participate in creation of digital teaching resource banks, the design and application of teaching communication platforms, etc.

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