

# Ignite the Sparks of BYOD Teaching Mode of Universities

Hesong Liu Guo Cheng Qisheng Wang Yangbin Xie

Department of Military Basic Education of National University of Defense Technology, Changsha, Hunan, 410072, China

**Abstract:** With the constant development of the technology and the society, BYOD (Bring Your Own Device) is an inevitable issue of the education field. Universities, as the frontier position of the educational field, properly bring the "BYOD" to the class, which enriches the teaching means and further extends the teaching space. It promotes the development of the teaching mode in the reformation of teaching process of boosting the distribution and acquisition of teaching resources, teaching interaction and effect evaluation.

**Keywords:** BYOD teaching mode

## 1. Introduction

The modern educational technology is the application of the computer-centered information technology in the education teaching field under the guidance of modern education theories and learning theories. It is a key technology in the education teaching reform of universities. With the constant update of education technologies, it is bound to lead to the profound reform of the teaching mode. "BYOD" is one of the representative modes. BYOD, a special case of mobile learning (M-learning), can use the personal mobile equipment such as the notebook, smartphone and tablet PC to finish the learning support such as information search, resource acquisition and real-time interaction at any time and place, thus avoiding constraining students in the traditional class.<sup>[1]</sup> When BYOD is introduced to the teaching of universities, the teaching space is no longer limited to the blackboard and platform. The personal "BYOD" can carry out teaching from multiple dimensions through the high-

speed, high-efficiency and full-coverage campus teaching networks. The teaching mode of BYOD emphasizes the student-centered concept. In the entire teaching process, teachers act as the organizers, guiders and promoters of learning. They make use of the modern education technologies to help students establish the appropriate learning situations so as to make students gain more autonomous and individualized teaching choices, make students fully exert their initiative, activeness and creative spirits of learning in the teaching situations in line with their interests, thus effectively optimizing the teaching effects and creating conditions for realizing the fair education and lifelong education. Therefore, through analyzing the opportunities and challenges brought by BYOD to the traditional teaching mode of higher education, this paper combines BYOD with university teaching in an exploratory way and changes the traditional teacher-centered teaching mode so as to ignite some "sparks" for the teaching mode of domestic higher education.<sup>[2]</sup>

*Corresponding Author:* Hesong Liu, Email, liuhesong@nudt.edu.cn.

## 2. Development of Teaching Mode

The mode is a direct and brief description of the internal and external mechanism of objective things; it is the simplified form of theory. The formation of mode emphasizes the abstraction and sublimation of experience accumulated by the previous people. It discovers and abstracts the objectively existing rules from repeated practice. The teaching mode refers to the structure, sequence and mode of the teaching process that has been formed through long-term education under the guidance of certain teaching theories. It is the relatively steady structure and mode of teaching activities formed in practice.

In terms of the entire development history of education, the formation of teaching modes can be done through two means. The first type is summary type. Through long-term teaching practice, it is got through accumulating experience and summarizing. Another formation mode is the deduction type. The development of traditional teaching mode has a long history. The ancient traditional teaching at the very beginning uses the "imparting-type" teaching. The mode is summarized as "speaking-listening-reading-memorizing-practicing". It emphasizes the mechanical repeated learning and requires more of the time, energy and expenses.<sup>[3]</sup>

At present, the innovation of the teaching mode based on the information technology development is mainly embodied in two aspects. On the one hand, it promotes the in-depth integration of the information technology and curriculum teaching of the school, boosts the reform of the teaching mode and creates the teaching that teachers guide and students actively participate in as the subjects rather than "being teaching-centered" nor "being learning-centered". Both "teaching" and "learning" should be emphasized, which extends the teaching length of teachers and the learning width of students; on the other hand, it deepens exchanges between teachers and students. In the traditional class, teachers give more considerations to how to finish their teaching tasks within the limited teaching hour and how to teach their class well rather than focus on how students learn well. With the information technology means represented by BYOD as the subsidiary teaching, students can preview online with the pre-class time and listen to the teaching with questions in mind. After class, teachers and students can also exchange with each other on the network platform, thus making the traditional face-to-face exchanges between teachers and students no longer restrained to the class, breaking

the "time limit" and "space limit" and facilitating the teaching exchange.

## 3. Demand Analysis of BYOD Teaching Mode of Universities

### 3.1 Teaching Demands of Teachers

Under the background of the information age, the teaching of traditional class no longer makes the teaching of teachers exert the fullest benefits. Teachers need a new kind of teaching mode, which can both guarantee their guiding status in teaching and promote learning of their students in a more efficient and forceful way. The application of BYOD well guides the development of the informationized teaching of teachers, which plays an active role in carrying out the teaching work. First of all, BYOD enriches the teaching means.<sup>[4]</sup> The appearance of BYOD enriches the teaching means of teachers. Through the informationized means, it facilitates the teaching of teachers and enhances their teaching aspects. On the other hand, students can have more autonomous time. Through the network, they can learn things on their own after class, thus well solving the one-to-more difficulty of teachers in the traditional teaching. Secondly, BYOD arouses students' interests. The purpose of teachers' teaching is to make students master knowledge. And the teaching effects of teachers ultimately depend on students' absorption of knowledge. Teachers need promote students' absorption of knowledge. Thirdly, BYOD can optimize the use of teaching resources. In the current days when the information resources show the explosive increase, the traditional teaching resources like blackboard-writing, courseware and teaching materials can no longer satisfy the teaching demands of teachers. "Being inclusive" and "contention of a hundred schools of thought" is what the teachers hope. With the help of BYOD, teachers can distribute the teaching resources such as videos, documents, MOOC curricula and micro-course to students in advance in order to promote the comprehensive use of the teaching resources of courses.

### 3.2 Demands of Students' Learning

From the perspective of learners, BYOD can provide the brand-new learning experience, which is mainly embodied in the following several aspects.

1) Take the initiative to learn. According to the investigations, the teaching "walls" such as "50-minute class hour" and "big classroom" are the important inducements that restrict the initiative learning of students. If students can gain and learn related teaching contents through the "common" or "preferred" private infor-

mationized equipment, coupled with multiple BYOD teaching forms such as "task-leading" and "problem-solving", students will turn from passive reception to initiative participation in teaching, thus truly realizing arousal of students' learning demands and driving their initiative learning behaviors.

2) Autonomously arrange the learning schedule. Influenced and restricted by multiple conditions such as the physical conditions and cognition levels, the learning progress of students cannot be fully synchronized. With the help of BYOD, students can choose not to learn or learn rapidly the contents that they have been familiar with or have mastered in the teaching process according to their actual learning conditions; for the contents they have questions about or do not understand, they can mark timely through the equipment, so as to learn by themselves through the teaching platform after class.

3) Timely communication and teaching feedback. Influenced by the equipment and capital, the communication and feedback in the teaching process have been the difficulty for the universities. BYOD can well solve this difficulty. With the help of BYOD, students can timely contact the teachers in class without disturbing the learning of others; after class, they can rapidly and conveniently set up the "one-to-one" contact with teachers and conduct teaching communication and feedback timely.<sup>[5]</sup>

### 3.3 Demands of New-Type Relations between Teachers and Students

At present, restricted by the teaching concepts, teaching method and teaching environment, the curriculum teaching of some universities still adopts the big class teaching and still use the duck-stuffing teaching form of "teachers teaching and students taking notes" in the traditional undergraduate education, thus postponing the cultivation of students' thinking ability and innovation ability. If BYOD enters the university class, students will not be restricted in the teaching category where the static information such as textbook and handouts exist; when students meet difficulties and key problems, they can use their own equipment and combine the teaching resources such as auxiliary pictures, cartoons and videos provided by the teaching platform and the abstract theories in class, so as to gain the understanding and recreation of knowledge. Meanwhile, BYOD also sets up a bridge of effective communication between teachers and students. In the traditional teaching process, influenced and restricted by factors like attention, character and expression, many teachers will meet the

embarrassing situation where they propose problems and no students answer. Through the teaching platform and the appropriate information reminder and feedback mechanism such as "group transmission", "bull screen", "private information", "grouping" and "test", with the help of BYOD, teachers can collect, arrange and analyze the problems in the entire teaching process, know about students' learning conditions, properly adjust the teaching strategies or teaching process so as to construct a kind of equal, relaxing and scientific interaction teaching mode.

## 4. Construction of BYOD Teaching Mode

The BYOD teaching mode is the mode that integrates BYOD action and university teaching. In short, it encourages students to gain knowledge through the terminal of mobile equipment and make full use of its feature of portability to extend the class. BYOD teaching mode does not simply bring "BYOD" to the teaching process, but connects BYOD and the teaching network platform set up by the universities to carry out multiple teaching activities such as teaching, self-learning, testing, communication and evaluation, further improve the teaching efficiency and learning effects and keep in line with the development standards of the international 4C teaching.

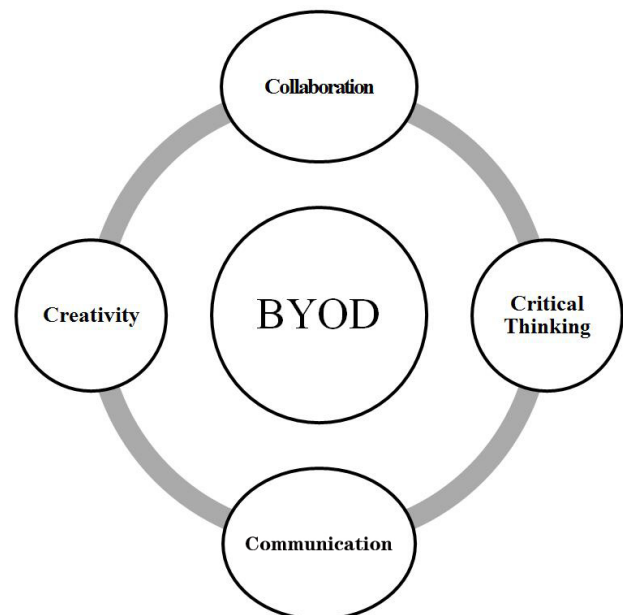


Figure 1. Construction of BYOD Teaching Mode

To be specific, BYOD teaching mode mainly involves three main parts, including students, teachers, intermediary and storage. The part of students is main-

ly composed of the private information equipment, including the intelligent cellphone, PAD and notebook; the part of teachers mainly includes the informationized teaching auxiliary equipment such as the desktop, notebook, projector, teaching display platform provided by the school; the part of intermediary and storage mainly includes the software and hardware of software APP, server, teaching management platform and electronic teaching files used for the BYOD teaching; it is the bond that connects students and teachers and is the "soul" of the entire BYOD teaching mode.<sup>[6]</sup>

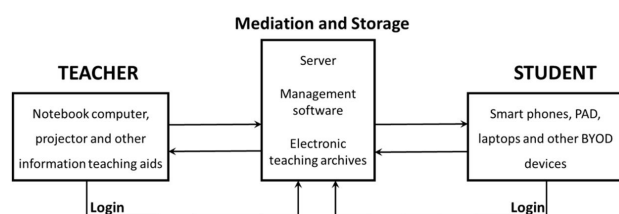


Figure 2. BYOD Teaching Mode

Under the BYOD teaching mode, teachers firstly use BYOD to set the teaching situation according to the teaching tasks, decompose the teaching objectives to the subdivided teaching tasks, guide students to illustrate the teaching tasks through the innovative thoughts, guide the solutions and methods chosen by students and provide help through BYOD. Finally, use BYOD to summarize and evaluate the completion conditions of the teaching tasks and propose the feedback opinions. Under the problem situation set up by teachers, students use the BYOD technology; with knowledge theory as the guidance, students can solve the learning problems through the experimental methods such as analysis of typical problems and simulation of process. This is a kind of BYOD teaching mode where teachers emphasize to guide students and carry out the autonomous and exploratory learning on the basis of timely interaction. Teachers set up the technical platform where students can accept in sensory and independently exert the innovation thinking for students through BYOD and construct a kind of informationized and networking environment for students; Teachers conduct process feedback and effect feedback of the mastery degree of students' knowledge points through BYOD so as to master the students' learning conditions and the problems in real time; after illustrating the key and difficult knowledge through BYOD, teachers guide students to solve the learning problems and efficiently finish the class teaching tasks. And students can coordinate and work with one another through BYOD and realize the win-win effects of joint progress. In this individual teaching process.<sup>[7]</sup>

## 5. Conclusion

BYOD, as the "newborn" of the modern education technology, is bound to attract more and more attention in the education field as related technologies gradually get mature. BYOD enriches the informationized teaching activities, which is favorable for realizing the integration of the information technology and curriculum and arousing the students' learning initiative. In the teaching practice of BYOD of universities, the digitalized learning mode of students is expanded; the informationized teaching activities of teachers keep being enriched. Students become the subjects of the learning activities and teachers become the guiders of the learning activities. Teachers and students reach the "win-win" of two-way output and transmission and further improve the teaching effects of the universities of higher education.

## References

- [1] Johnson L, Adams S, Witchey H. The NMC Horizon Report: 2011 Museum Edition[M]. Austin, Texas: The New Media Consortium, 2011.
- [2] Zhengtao Xu. Exploratory class teaching design supported by mobile technology[A]. Chinese association for artificial intelligence, computer based education society. computer & education: education application and practice innovation of new technologies, new media-memoir of the 15th academic annual meeting of association for computer based education[C]. Chinese Association for Artificial Intelligence, Computer Based Education, 2012:5. (in Chinese)
- [3] Lan He. Application of BYOD teaching model in class of creative designs in higher vocational colleges[J]. Jiangsu Science and Technology Information, 2016(32):41-43. (in Chinese)
- [4] Li Wang, Jianbin Pan, Huyuan Feng. Research on new teaching model of college class based on BYOD[J]. Modern Educational Technology, 2015,25(1):39-45. (in Chinese)
- [5] Yitao Liang. Application design of mobile teaching based on BYOD[J]. Modern Science, 2015(11):125-125. (in Chinese)
- [6] Qingqiu Zheng. Research on situation of colleges and universities and policy class informative teaching approach based on BYOD[J]. Journal of Inner Mongolia Normal University (Education Science Edition), 2016,29(6):155-158. (in Chinese)
- [7] Lian Yang. Application of BYOD in class teaching of colleges and universities[J]. China Adult Education, 2016(15):10-10. (in Chinese)