

# Application of New Technology of Mobile Internet to Boost the Development of Vocational Education

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**Abstract** — This paper carries on discussion about the attempt, practice and experience of better use of service platform of mobile learning, mobile Internet to boost the construction of campus culture, on the basis of what has been advocated and practiced by applying new technology of mobile Internet to the comprehensive improvement of teaching, teaching and scientific research and college management.

**Keywords** - “*Intelligent ZITVC*”; “*Mobile Campus*”; *mobile Internet*; *management*

## I. INTRODUCTION

Zhejiang Industry & Trade Vocational College, ZITVC for short hereinafter, is one of the backbone provincial vocational and technical colleges. Since her establishment, new technology, new means and new concept have been introduced to teaching, management and scientific research, etc. In recent years, with the constant and rapid development of mobile Internet technology, ZITVC has started to draw support from mobile Internet technology so as to promote the construction of campus culture actively, explore the new model of vocational college students’ learning diligently, and focus on improving teaching and scientific research management creatively. ZITVC has utilized service platforms of mobile learning to provide a convenient and modern management and communication tool for college administrators, teachers and students. After the application of mobile Internet, ZITVC has achieved good results in the construction of campus culture, the transformation of the students’ learning model, and the improvement of teaching and management level of the college.

## II. METHODOLOGY

### A. Action research method

Action research is the main research method, which runs through the whole process of the research. We usually adopt the following steps in research. Firstly design, discuss, implement and observe; secondly reflect, improve design, implement again and observe again; thirdly continue to improve design, continue to discuss, continue to implement, and continue to observe, continue to reflect upon summary, until popularize in large scale. This is what we call action research method of “three stages and two reflections”. In the whole course of the study, we have been sticking to the principle of the combination of theory and practice, the combination of research and promotion. Through the

continuous reflections and improvement, the whole process shows a spiral rise to improve the situation.

### B. Questionnaire method

In addition to action research method, we also adopt questionnaire method. According to the research development situation, we have intentionally worked out written questionnaires several times, distributed to subjects, collected them and analyzed them. Simultaneously, the representative teachers and students are selected to carry out the case tracking. Through this method, we have collected data, given feedback of research results, reflected on the analysis and constantly made improvement and summary.

### C. Documentation research method

We have collected relevant information about the subject which has been studies and published in journals, newspaper and websites by others so as to keep pace with the status of the research related to the subject, so that the scientific and theoretical basis for the subject is provided and thus come to understand the merit and significance of the research.

## III. DISCUSSION

### A. Explore the new model of development of vocational education in mobile Internet era.

ZITVC has viewed “Students are willing to learn, teachers are willing to teach, the enterprises are willing to employ” as her vision of school running. All the thirty-seven majors, engineering and arts included, have the precise professional positioning and the clear goal of cultivation. With information technology as the core, the four chief teaching systems have thus formed, which is modern information, modern maintenance, modern testing and evaluation, and modern management. ZITVC persist in service-aiming and job-orientation, adhering to such school

running concept as “A better development, an advantageous employment, being able to start a business, being hopeful for further studies after graduation, a solid foundation for life-long study for all the students”. In daily affairs of school running, ZITVC always stick to the idea that vision should be transformed into action, pay more attention to the construction of campus culture and the management of the teaching, and attach great importance to the corresponding service of the students’ learning and employment. In order to achieve better implementation results, ZITVC has kept a positive and open mind and therefore been the leader of introducing new technology, new means, and new concept into the whole teaching, scientific research and management.

With the constant rapid development of mobile Internet technology, subversive changes have taken place in terms of the different channels of getting information knowledge; meanwhile, it plays a very important role in the promotion of life and learning. As is shown in “Statistical Report on the Development of the Thirtieth Internet Network in China”, only in the first half of 2015, the number of Internet users through mobile phone access to the Internet amounted to 0.688 billion, the number of desktop Internet users came to 0.38 billion, as a result, mobile phones have become the first major Internet users in China. Under the background of the mobile Internet era, ZITVC first try to apply new technology of mobile Internet, new methods to the construction of campus culture, management of teaching and scientific research, and service for the students’ employment, and so on. Through a lot of analysis and investigation, ZITVC introduces service platform of mobile learning to supply all the teaching faculties and students with a kind of convenient and modern tool of learning, management and communication.

#### *B. Take advantage of new technology, mobile Internet, to boost the development of vocational education .*

1)Apply modern means of new technology to create new models of the construction of campus culture of vocational colleges.

As one of the important component of the college construction, the construction of the campus culture is not only the main means of enliven the students’ campus life, but also the magic weapon for run characteristics. What the vocational colleges cultivate is the talents who directly engage in production, service, technology, and management of the first line of the application type, technology type, and practical type. Accordingly, the characteristics of vocational education should be stressed in the whole process of the construction of the campus culture of vocational colleges, centering on student group identity and foundation of running a vocational college. ZITVC has held some large-scale events to promote the construction of campus culture, such as Sports Culture Festival, Art Festival, and a series of thematic education activities. In the era of mobile Internet, the students are living in an environment that is surrounded by traditional Internet and mobile Internet. Thus, the college has been anticipating that the construction of campus culture should be innovated, which not only reflects the

characteristics of vocational colleges but also adapts to the psychological needs of contemporary college students. It is within this context that ZITVC introduced the service platform of mobile learning to innovate the construction model of campus culture through the traditional Internet and mobile communication network in order that the students are willing to take their initiative to participate in the construction of campus culture actively and spontaneously to shape a more stable, cohesive campus culture.

Firstly work out campus newspapers and magazines in mobile phone to shape the campus culture.

Giving publicity to campus systematic culture, spiritual culture, and behavioral culture is the important component for the construction of campus culture. Like most vocational colleges, in ZITVC, it has been carried out either by posters in propaganda column or by talks in students’ meeting. ZITVC hopes to better stir up the students’ enthusiasm. Under this background, college newspapers and magazines in mobile phones have emerged, which is called “Intelligent ZITVC”.

ZITVC utilizes “Intelligent ZITVC” to set up different kinds of special columns, such as scholarship and grant being made known, recording of on-campus actual events, employment guidance, etc. The students turn on their mobile phones, in no more than several minutes, to keep track of all the activities that are going to be launched recently and the necessary information of employment and internship. In the form of mobile phone newspapers, ZITVC introduces proper values beneficial for students, such as the reports about advanced deeds of teachers and students, and revealing of the students’ practice achievement, to guide the students to form positive learning and employment outlook. This subtle psychological counseling can enhance students’ sense of belonging, as far as the vocational college students who step on the job as soon as they graduate are concerned.

Secondly carry out moral education of students to promote the work of moral education and emergency treatment by pocket mobile devices.

Vocational college students will start to work after graduation, but their vocational consciousness, vocational ideal, professional ethics and employment notion are so weak and immature that they need urgently guidance and encouragement from their teachers. Thus, strengthening moral education of students has become one of the important tasks on higher vocational colleges.

Tradition ways and approaches of moral education of students were dominated by offering corresponding courses and lectures. In order to have a better guiding and encouraging effects on students, ZITVC utilizes “Intelligent ZITVC” to guide their professional career design and plan, educate their outlook on life and view of value. The employment ideas of celebrities whom the students are most concerned about, the success stories of celebrities of various walks of life, at all times and in all countries, the social masters’ advice about learning, life and professional project are issued regularly to students weekly. So, without going to sit in classrooms, the students can only turn on their mobile phones to read some stories to get to know the society and the trade they are going to live by in a relaxed situation. By

subtle means, ZITVC help the students to regain more confidence, to reshape oneself according to the necessary quality of the position, to set up positive outlook on life, view of life and employment, which can enable them in turn to make for society and integrate into society by taking a positive attitude to success. Besides, ZITVC makes a special subject to send to students in case of big events in society and any unexpected events the college encounters so that the students are likely to know better about the causes and influences, and to guide the students to form their own independent ideas. By doing so, it not only maintains campus safety, but also helps the students form correct concepts by virtue of current affairs.

Thirdly establish communication mechanism of students' home and college to guarantee the smooth doing for the moral education work by pocket mobile devices.

The students are in an important growth stage of knowledge, skills, moral character gradually formed, so they are badly in need of correct guidance and education, hoping to be respected by teachers and classmates. Naturally, the teachers should get some support and coordination from students' parents while carrying out the moral education.

The teachers in ZITVC used to talk face to face with the students' parents or communicate by telephone, both of which require significant time and energy. "Intelligent ZITVC" has created a new, convenient real-time channel of mutual communication between teachers and students' parents. By "Intelligent ZITVC", the teachers send the students' learning situations, psychological status, internship progress, and the aspects that need parents to cooperate with to students' parents. The teachers avoid the repeated telephone calls and face to face talking, whereas the students' parents are informed of the students' overall condition at any time and at any place, and are able to give the feedback about the results of communicating with their children to the teachers. This kind of bilateral real-time interaction is of significant help for the students' growth. For instance, at the end of each semester, in order to avoid such a situation that the student's concealing the score, the teachers edit multimedia messages of the student's compulsory courses, skilled-based courses, moral education courses, and the overall evaluation of their college performance and send them to the students' parents. The parents get the real test and evaluation of their children's learning, which is convenient for the parents to guide and help their children. To sum up, the establishment of communication mechanism of students' home and college has guaranteed the smooth doing for the moral education work by pocket mobile devices.

2) Carry out mobile learning at any time and at any place to improve students' comprehensive professional ability.

The students enrolled by vocational colleges take the view of learning a trade and hunting for an ideal job. In class, the vast majority of students look over forgets about the operation process demonstrated by the teachers. In recent years, the rapid development of mobile IT technology has brought out a new learning model ---- mobile learning. As a learning approach of learning at any time and at any place by

using small mobile device, for example, mobile phones, mobile learning has been recognized by many learners. With the combination of the present learning trend and the learning characteristics of vocational college students, ZITVC has applied "Intelligent ZITVC", the mobile campus, to carry on mobile learning at any time, at any place and at any mobile device, so as to arouse the students' learning enthusiasm, to make the students learn more initiatively, and to enable the students to learn the skills more solidly.

Firstly extend the college classrooms to stimulate the students' learning enthusiasm.

The application of "Intelligent ZITVC", the mobile campus, is to blend the real classes with the virtual ones, to combine the traditional teaching method of "teacher-centered" with the automatic learning of the students' making use of mobile phones, to stimulate the students' learning enthusiasm by learning by fragmentation.

The teachers of ZITVC, the engineering major of Shoe Design and Manufacturing Technique, have better applied the mobile campus to make multimedia courseware of the fundamental knowledge, the chapter counseling, and the best selection of exercises, above all, the whole process of shoe designing, of major courses, which integrate with written words, pictures and videos and send it to students by Internet. The students can learn conveniently if mobile phone is available, whether they are in class, or on the way. After practice, the students have come to an agreement that the learning courseware they have got is so short in space and compact in content that they can have mobile learning in their spare time, what's more, they can consolidate the points they haven't comprehended completely in class at any time and at any place. What's more important is that the way of mobile learning has changed static description of the texts into a dynamic unity that combines written words, pictures and videos with each other, which is more vivid, intuitive and appealing. The teachers of ZITVC, the major of Shoe Design and Manufacturing Technique have also found that students' learning interest and enthusiasm have been significantly improved through the mobile campus.

Secondly learn skills autonomously to operate video courseware to improve the level of students' operation skills.

Fundamental courses and skill-based courses are the key learning content for the students of higher vocational colleges. Compared with fundamental courses, the students have attached greater importance to learning skill-based courses because the students' employment is dependent upon their skill level. But the present situation is that the students are unable to grasp the essential while they watch their teachers' field demonstration in class or in laboratories, after class, they tend to look over forget about the operating points, what's worse, during the internship, there is no way for teachers to guide them on the spot. In view of this situation, the teachers of ZITVC, the engineering majors such as Surface Engineering Technology and Material Engineering and Management, make mobile video courseware for students to learn and review on the basis of skill-based operation. The teachers of Numerical Control Technology Application have applied the mobile platform to make concise and succinct video courseware. During the

internship, if the students are not familiar with a certain operation, they can consolidate the key points by playing the relating video of operation through their mobile phone to solve any problems on the operating spot. The students have improved the operational level by watching the video repeatedly and actual operation.

3) Improve the level of educational administration by virtue of service platform of mobile learning.

In the first place, establish smooth daily communication and feedback mechanism.

“Mobile Campus” has established smooth daily communication and feedback mechanism for the teachers and students of ZITVC. The teachers have informed the students of their learning pace and the teaching armaments of the college by sending those notices and reminder about the admission guidelines, curriculum adjustment, make-up course arrangement, the college activities to them through “Mobile Campus”. What’s more, the teachers and students from all the engineering and science majors of ZITVC have added attention to each other in “Mobile Campus”. At the end of the daily course, the interactive communication between the teachers and students in terms of the teachers content is done, during which the teachers come to know the students’ learning situation in the course of the students’ asking questions and answer their questions in time, forming a kind of situational learning atmosphere outside classrooms in real time communication and feedback. The students of all the engineering and science majors of ZITVC have discussed the teaching environment of the college, teaching facilities, campus activities organization. In the process of the students’ speaking freely, the teachers and the management groups can in turn what can be improved by the college in time.

In addition to the real time communication with the students in college, “Mobile Campus” has become the modern management tool for the communication of the teachers and the students who are in internship, productive practice, “taking post” practice and graduation comprehensive practice. During the internship or different kinds of practice, students from all majors of ZITVC scatter in different type of enterprises, which is tough for the guiding teachers to go to examine and manage personally. Instead, through one of the function of “Mobile Campus” (3g. zjitec.net:8086), the supervising teachers can upload the task requirement to assign the practice tasks in detail, read the weekly summary of the students and comment on it to know the students’ practice progress and let the students know their teachers’ evaluation about their job. The students are in a position of uploading their weekly diary to report to their supervising teachers. In their weekly diary, the students can type their work progress, what they have obtained and lost and even their feelings towards the job, the sensible suggestions about college courses and management included. Whatever they type, it is pretty convenient for them to do so without time and space limitation. They can do it either by a personal computer or a mobile phone if Internet is available. The guiding teachers can provide the students with practice and employment guidance by sending them the latest

recruitment information so that the students in enterprises feel the warm and sincere care of employment from the college.

In the second place, carry out teaching evaluation and improving teaching level.

There is no denying the fact that the teaching level of higher vocation colleges is directly related with the enhancement of the teaching quality, while the teaching quality has great impact on the college’s reputation. Therefore, carrying out the assessment of teaching level regularly is an important job for a higher vocational college. The traditional way of examining and weighing the teaching level is to carry out the survey about the students’ satisfaction with the courses the teachers.

Before applying “Mobile Campus”, ZITVC has carried out the survey about the students’ satisfaction with the courses and the teachers’ teaching quality at the end of each semester. It was mainly done by either face to face forums or questionnaires. There are more disadvantages than advantages for both ways. As for face to face forums, the dominant disadvantage is that only two representatives of each class can attend it. The limitation on the number of people makes it hard to achieve an equitable and balanced representation. So the evaluation’s objectivity is questioned. As for questionnaires, the first obvious disadvantage is that the questions brought forward by management groups are in agreement with teaching and courses. The second obvious disadvantage is that some students never take it seriously who just regard it as a kind of compulsive task and finish choosing A, B, C, or D without understanding it completely. For these two ways, to do a lot of statistical analysis of the feedback results is both time-consuming and laborious. After introducing of “Mobile Campus”, what the teachers do is to send a message of an electronic questionnaire to students. In no time, the teachers can see the distribution of the statistics of the students’ replies through the mobile phones, which makes it possible for the teachers to relieve from heavy preliminary investigation and data statistics and save a lot of manpower and material resources. The way to carry out mobile phone voting at any time and at any place encourages the teachers to make surveys on the teaching level of more types and wider range, to help the teachers get more students’ unique and different ideas about college teaching, curriculum setting, practice management and the like, which boosts effectively the enhancement and the improvement of the teaching level of higher vocational colleges.

#### IV. CONCLUSION

As far as our national conditions are concerned, it costs us millions of Yuan to make a teaching platform, and at the same time, the operation and maintenance of the platform involves in such factors as personnel, equipment, technology and management, which is great cost for higher vocational colleges. ZITVC expects that a complete set of service model is developed to provide all-bearing services, such as server, platform development, technical maintenance, software upgrading, training of product using, so that ZITVC

pays a certain amount of service fee to be able to operate platform easily.

So the advantages of mobile learning can be summed up as follows. Firstly, it breaks the limitation and captivity of time and space. Secondly, various forms of learning materials are at your fingertips. Thirdly, it reduces the cost of communication and free unlimited mass information is sent. Fourthly, it can be shared at any time, so it becomes a knowledge and information database that can be browsed at any time with college. What changes have taken place since the adoption of mobile learning? In one's spare time, the student turn on mobile phone to acquire knowledge by watching the videos, to perfect oneself by sharing the learning and working experience and by adopting others sensible proposals, to communicate their gaining and loss with classmates, schoolmates and teachers around them, which is the very valuable moment of learning culture the administrators and teachers would like to witness in their life.

The service platform of mobile learning has set up a new model of the construction of campus culture of vocational colleges, positive and steady campus culture has come into being; what's more, it has innovated the way of college moral education, in which students can get moral education and learning in a relaxed, more interesting and attractive environment. In addition, the students can learn at any time, at any place, at any device, to improve the students' level of professional engineering skills with the help of the service platform of mobile learning. Last but not least, it has bettered the standard of teaching and management in the college. So, the service platform of mobile learning adopted by ZITVC is popular with the teaching faculties and students because they think that such a new model is so innovative and unique that it can meet the double needs of teaching and management.

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