Exploration on Cultivating OPhone Technology Talents in Universities

Jian Kuang, Zhiwen Nie, Jiali Bian
Laboratory of Embedded System and Broadband Telecommunication
Beijing University of Posts and Telecommunications
Beijing, China
jkuang@bupt.edu.cn, niezhiwen@gmail.com, jlbian@bupt.edu.cn

Lin Han
China Mobile Shenzhen Ltd
Shenzhen, China
hanlin@chinamobilesz.com

Abstract—With the development of terminal technology, OPhone platform is playing more and more influential role in people's daily life. Taking chance of the prosperity of OPhone technology, this paper aims at bringing forth some explorations on cultivating OPhone technology talents in universities. Firstly, some inductions are given to illustrate the developing situation of OPhone technology, after which comes some technological backgrounds. Then, we make a further analysis dealing with the necessities, the advantages and the disadvantages of cultivating OPhone technology talents in universities. Finally, resorting on our teaching experiences of many years in BUPT, we put up with some effective strategies of popularizing OPhone technology in universities.

Keywords-OPhone; cultivation; university; strategy; talents

I. INTRODUCTION

As the rise of high technologies around the world, the way of accessing to information is subtly changed. Mobile Internet and Internet of things give people more opportunities to perceive the required or the potential information they are interested in, anywhere and anytime. A series of intelligent terminal, which is acting as the information collector, processor, transmitter and the most direct interface provider, is playing more and more important role in the daily life. Meantime, the extensive usage of Terminal Technology also put forward higher requirements for the related professionals and developers. How to bring up high-quality professionals in the area of Terminal Technology becomes a hot topic dealing with college education.

Taking OPhone, which is an outstanding terminal platform, as the main technological framework, this thesis is tending to make some cutting-edge discussion about how to create an OPhone-tech education model in the institution of higher education.

II. CHARACTERS AND PROSPECTS OF OPHONE TECHNOLOGY

A. Characters of OPhone technology

Advanced Technology—OPhone platform learns lots of excellent characters from other mature mobile platform, coming into birth with many instinctive advantages inherited from famous Google Android platform, including underlying open-source Linux OS core, flexible Java application framework and so on. It gives more friendly experiences to final users, and also provides a suit of mobile telephone solution and kinds of data service solution [1].

Monolithic Design—OPhone provides a monolithic mobile Internet solution from hardware reference design and upper layer services to terminal application software. Terminal emulator and custom-built IDE make it more convenient and time-saving to develop OPhone applications.

Enhanced Security—Extensive mobile applications will be chained up without secure, reliable development environment. To meet various complicated requirements for the mobile communication services, OPhone platform provides an improved mechanism, in which security policies are attached into multiple layers, hopefully making mobile terminal and user data more security. Otherwise, another backup and recovery mechanism is introduced, allowing backup and recovering of various user data and system data according to user’s need, in case the sensitive data get lost without any awareness.

Persistent Extendibility—OPhone is instinctively an open and sharable platform with flexible architecture and extendable application interface. Plenty of universal standards are supported onto this platform. Programmers and system designers all over the world can extend and optimize OPhone platform accords to their requirement.

Comparing OPhone platform with other popular mobile platform in many aspects [2], as shown in Tab. 1, we can directly get the superior characteristics more clearly.
TABLE I. CHARACTERISTICS OF DIFFERENT PLATFORM

<table>
<thead>
<tr>
<th>Functions</th>
<th>Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IPhone</td>
</tr>
<tr>
<td>User Behavior Analysis</td>
<td>Supported</td>
</tr>
<tr>
<td>Local Resource Search</td>
<td>Only support contact search</td>
</tr>
<tr>
<td>Intelligent Network Monitoring</td>
<td>Unsupported</td>
</tr>
<tr>
<td>System Backup and Recovery</td>
<td>Unsupported</td>
</tr>
<tr>
<td>Widget</td>
<td>Dashboard Widget</td>
</tr>
<tr>
<td>Browser</td>
<td>Safari based on Webkit</td>
</tr>
<tr>
<td>Multimedia</td>
<td>QuickTime</td>
</tr>
<tr>
<td>GUI</td>
<td>OpenGL + Quartz</td>
</tr>
<tr>
<td>Kernel</td>
<td>Darwin (Mac OS X)</td>
</tr>
</tbody>
</table>

B. Prospects of OPhone technology

The OPhone project is presided by China Mobile, which is one of the most influential and biggest telecom enterprises around the world, and participated by many chip manufacturers, terminal manufacturers and application software providers. All of this is very beneficial to providing integrated solution for market demand dealing with chip, mobile terminal, system and application, and bring up a sustainable developed and healthy industry chain. With the increasing terminal market demand, OPhone technology will promisingly lead to large-scale development community and larger market share, due to its low-threshold rudiment and strong portability.

III. NECESSITIES OF CULTIVATING OPHONE TECHNOLOGY TALENTS IN UNIVERSITIES

University, playing a very important role in cultivating professionals, creating knowledge, servicing society and promoting employment, is definitely responsible for keeping keen touch with the technology development and social requirement, to guarantee that the teaching quality, researching direction and teaching management won’t drop behind. It is becoming a hot topic to path an effective way to satisfy the theoretic teaching, knowledge innovation and social need simultaneously.

Placing the teaching in context of computer science, it is an everlasting purpose to illustrate students the computer principles, including computer architecture, software, hardware and so on, after which comes the detail of technology branches. In teaching practice, taking the advanced OPhone technology as the teaching model, students can master computer knowledge more intuitively and more effectively. Courses, such as computer theory, operating system, computer network, software engineering, will go together to enhance the integrity of computer knowledge. In addition, thanks to the persistent extendibility of OPhone technology, it will also help students promote their model of thinking in engineering method and innovative practice.

More importantly, bringing OPhone technology into higher education can effectively strengthen the relationship between universities and enterprises, and gives each other more chances to share their achievements in cultivating talent, research and technology, with the ultimate goal of forming an organic and vivid platform for students and social developers. Facts have shown that, the cooperation between universities and enterprises conformed to the law of development and satisfy social requirement in respect of economy, education and scientific research.

IV. ANALYSIS OF ADVANTAGES AND DISADVANTAGES IN CULTIVATING OPHONE TECHNOLOGY TALENTS IN UNIVERSITIES

A. Advantages

Firstly, the students are the fundament of popularizing OPhone technology in universities. University students, who have a better understanding of theoretic knowledge and a stronger acceptance of new technology, are prone to be
attracted into OPhone technology development and discussion, through layered, serialized cultivation. That can directly lead to a massive development community.

Secondly, the frontline teaching team and research team are decisive power of popularizing OPhone technology in universities. As the saying goes, one cannot go further without teacher. Teachers, in universities, have been playing important role in teaching, research and talent cultivation, and are the key strength to integrate OPhone technology into current teaching system depending their experiences. They are sensitive to development of OPhone technology, and are capable of converting new technology reaching into teaching courses.

Thirdly, the scientific teaching system, the effective teaching materials and the various practical environments are all guarantee of popularizing OPhone technology in universities. The education environment and monitoring system in universities make good conditions for students in the process of cultivating OPhone technology talents.

Otherwise, students’ technology communities are another propellant for popularizing OPhone technology.

All in all, there are many inner advantages in promoting OPhone technology talents in universities, but we still need to integrate resources in being, and make a unified planning absorbing these advantages to popularize OPhone technology step by step.

B. Disadvantages

1) Specified application-based new technology has a limited access to current cultivating system: The education of universities has its inner cultivating system. OPhone technology, as kind of specified application-based new technology, cannot be the major teaching content. It may take a supplementary place to give students a cutting-edge technical preparation.

2) It is hard to squeeze the total credits to make room for OPhone technology courses: In China, higher education is based on credit system. Bringing OPhone technology into universities education definitely signifies the credit compression. Under the circumstance, of which the credit deeply saturates, how to reallocate the overall credits becomes a critical issue.

3) Enrollment expansion leads to educational resource stress. The practicality of OPhone technology is so obvious that student cannot master its essential principle and development skill without the combination between theory and experiment. However, suffering from the enrollment expansion in recent years, educational resources are becoming more and more scared. Experimental practices of OPhone technology are restricted due to lack of up-to-data devices and experiment sites [3].

4) Role shifting after graduation diverts the attention of students. With the rapid development of information technology, students are tired of catching up with the ever-flashing technology and the influence and appeal of IT vocation are losing its glory. Students tend to make other occupation when they decide to step into society. That can directly lead to brain-drain of information technology, and OPhone technology will inevitably confront the same situation.

5) There are by-no-means negligible divergences in choosing technological platform with similar characteristics. In the popularization of OPhone technology, it is foreseen that various platforms with similar technology and function will not stand by. Different teachers are probable to choose different technological platform based on their various teaching requirements. For OPhone platform, there is no extensive application over other platforms.

Dealing with the above disadvantages, in the popularity of OPhone technology, it is important to enhance the corporation between universities and society, which benefits from the efforts of teachers and managers in universities.

V. STRATEGIES OF POPULARIZING OPHONE TECHNOLOGY IN UNIVERSITIES

A. Organize the teaching team, which is sensitive to OPhone technology

With the coming times of knowledge economy, cooperative work style plays a more and more important role in people’s daily life. To advocate and carry forward the teamwork spirit, it is necessary to organize a teaching team in the popularization of OPhone technology. Teachers in this team can work together to complement each other and accumulate the teaching experiences, with the ultimate goal of becoming a technical and research pioneer of OPhone platform.

B. Set up a suitable curriculum system

There are two ways to integrate OPhone technology into current teaching system.

1) Set up specialized selective courses: It is an easy, effective way to set up the theme-specialized selective courses. In the courses, undergraduate students and postgraduate students can be given OPhone technology in different levels. Teachers can adjust their teaching content according to current technical level of OPhone technology, to bring students the cutting-edge knowledge and prospect. The style of selective courses can absorb more students of different specialties into the researching and discussion of OPhone technology.

2) Replant OPhone technology into existing courses. In addition to setting up specialized selective courses, it is a meaningful idea to replant OPhone technology into existing courses. Teachers can add some OPhone-related knowledge points into some courses, such as Telecommunication Software Design, Embedded System, and Intelligent Terminal OS and so on, in order to help students enhance the understanding of fundamental theory and broaden their horizons of knowledge.
C. Develop the high-quality teaching materials

Currently, there are few teaching materials suitable for OPhone technology training and experimenting. So, it is an emergent task for teachers in the above-mentioned teaching team to develop a series of OPhone teaching materials. In the development of related materials, we should take both theory and practice, both analysis and integration, into careful consideration to give students a layered and distinct teaching way. Not only can this way lower the threshold for beginner, but also deepen the understanding of difficult point for professionals.

D. Layered the cultivation mode

Layered the cultivation mode of OPhone technology is a sign of maturity of OPhone education. Courses and experiments should be set up to satisfy the actual needs of students in different levels. For example, preliminary and basic courses are more reasonably fit for undergraduate students, and advances courses are fit for postgraduate students. At the same time, the acceptances of different students should also be taken into consideration.

E. Improve the practical teaching platform of OPhone technology

After all, OPhone is such an engineering-practical technology that students have to make it further through various experiments, which call for the adequate practical sites and environments in universities. As a matter of fact, we can meet those educational requirements by way of supplementing some OPhone-specific hardware and software experiments onto existing laboratories of computer and telecommunication. It is worth mentioning that it will do well to the popularization of OPhone technology to develop a platform supporting OPhone practice and development, on which students will be able to test and validate their applications in the mobile Internet environment.

F. Advocate innovative activities in universities

In order to popularize OPhone technology, various societies should be set up in universities, such as OPhone Technology Club, OPhone Application Developer Community and so on. At the same time, OPhone innovative application competition should be held periodically. Then more students will be attracted to learn OPhone technology, and more students will attend the development of mobile innovative applications. By means of these activities, students will gain more capabilities of teamwork development and engineering practice outside class.

G. Strengthen the cooperation with enterprises and brother universities

The popularization of OPhone technology cannot go further without the supports from enterprises, like China Mobile and other social institutions [4]. Universities can step onto a win-win platform through carrying out different kinds of cooperation:

- Invite extramural experts and technologists to participate in intramural OPhone theory and practice teaching, competing organization and society activities.
- Establish a steady-going base for students’ practice, through the cooperation with enterprises.
- Adjust the course content according to the changing need of society to broaden students’ employment channels.
- Build a perpetual mechanism which provides a platform for discussion and communication between enterprise and university.

REFERENCES


