

Educational Use of UMPC, Its Possibilities and Limitations

Jeonghun Lee[†] and Woochun Jun^{††}

[†]Seoul Donam Elementary School, Seoul, Korea

^{††}Dept. of Computer Education, Seoul National University of Education

Summary

In this article, we investigate any possibilities and limitations of UMPC as an educational device. First of all, we discuss requisites of educational device in current knowledge-based society. Then, we introduce birth, basic concept, and main characteristics of UMPC. We also present how UMPC can be used in education. Finally, we discuss current position, possibilities and limitations of UMPC.

Key words:

Computer-based Learning, IT-use, Mobile Learning, UMPC

1. Requisite of Device in Education

In conventional classroom, blackboard, chalk, and textbook have been the biggest learning media. Students have learnt, listening to teacher's explanations with 'personally owned textbook' given to them. Although this is still the initiative in many fields, its form will gradually change with the support of technology. It is personal learning device and wireless environment that can play its pioneer roles. Then, what features personal learning device should have? A few of those are arranged in the followings[1]:

(i) Should have mobility.

Students should be able to carry device easily like carrying their own book and make use of it easily.

(ii) Should be able to show various learning data.

Device should be able to induce students' interests with various forms of media like text, sound, video, etc.

(iii) Search of personal data and information should be easy.

Device should have sufficient storage and speed to enable easy search for data on Internet, and arrangement of personal data.

(iv) Should be able to revitalize communication

Device should be able to increase communication between student and student, and teach and student with more various methods.

(v) Should be easy to use, and easy to be spread.

Device should be inexpensive to have no burden to be spread. Also, students should be able to use device friendly, and systematic stability has to be achieved to reduce troubles.

Though many more features can be mentioned, equipping the five properties can be categorized as personal learning device with basic properties.

2. UMPC

Ultra Mobile PC project, 'Origami Project' promoted with MS as its central figure, has enabled us to see a new device called UMPC. As we can see from Ultra Mobile, it is a device mainly focused on mobility. Advent of this device in 2006 attracted not only attentions of computer educators and educational engineers but also many people. Maximizing portability with weight less than 1kg, recording text on screen like TPC (Tablet PC), adding friendliness by bringing environment of general PC by installing Windows XP Tablet PC Edition OS, enabling Internet connection on the move by supporting various wireless modes, etc attracted many interests even before product being launched[2,3].

However, when end product was first launched, disappoint was big as much as huge expectation for it. The followings are the simple comparisons with UMPC's competition in educational device, TPC.

(i) Mobility

It is likely be one of a few comparative advantages UMPC has over TPC. Its weight about 600g is far lighter than TPC weighting about 1.5kg. Also equipped with 7 inches LCD, it can be carried easily like a diary. However, its 2 hours battery makes this mobility insignificant.

(ii) Readability

LCD size of 7 inches might offer good portability, but it does not provide good readability for learning materials. Searching data with 7 inches screen requires huge patience. Also, it can provide many difficulties when using digitalized textbook. Particularly to students in lower grades, reading small text directly or learning by pressing enlarge button each time can obstruct the flow of learning.

(iii) Data playback

Since it is Windows XP based, all forms of media that can be viewed on Windows can be viewed. This goes the same for TPC.

(iv) Data search, application of data

Since it supports various communication modes, it is suitable to use wireless internet on the move or in fixed locations. However, due to lack of CPU performance and small storage, there is limitation in processing searched data to various media. Also, pen input mode is impact system, making it difficult to express in detail than TPC, which is electromagnetic induction system. In addition, since physical keyboard does not exist, students who are used to keyboard in searching or processing data can have significant difficulties.

(v) Communication

Various communications can be made with basic installed program or additional programs. Particularly, most of devices are equipped with cam, allowing UMPC with more various communications like image communication, etc compared to TPC without cam.

(vi) Spread

Although its price has gone down compared to initial period, the price is still too high to be spread to all educational environments.

3. 2nd Generation UMPC

As the first UMPC announced in 2006 ceased in just symbolic meaning of emphasizing mobility, second platform of UMPC was announced in less than a year, April, 2007, and prototype was launched in just 2 month. Keeping its 7 inches monitor size, the prototype supports resolution over 1024*600, 1G memory, and low power consuming CPU, and new form of keyboard to get rid of difficulties in input. Battery hours has also increased to 4 hours. In other word, many improvements were made in hardware[4].

Then, what about personal device in education? Although it has made significant improvements in performance, it still has many limitations. By keeping 7 inches size, its readability is relatively weak, focus is on reading existing data rather than processing data, and high

price make it hesitate to use it as personal educational device.

4. UMPC as an Educational Device

Not only for educational, but even as a general mobile PC, UMPC is very ambiguous product to be categorized. It is outstripped by PMP in price for viewing video, presentation data, and general document, and it might have to hand over its position to MID based on Linux anytime soon. Also, its market is not big since its price range is similar to TPC with better readability and similar performance, and its position can be further weakened when supply of OLPC (One Laptop per Child) is accelerated.

If we try to find its meanings as an educational device, we could mention its portability, friendliness since it shared the same OS with existing PC, and complex function, etc. This is the point where it can be expected to play its role as sub device like sub-notebook rather than playing main role as personal educational device. In other words, participating in learning using notebook or TPC in school, and when continuing learning on the move or in particular locations, UMPC can be used. Needless to say, it can only be possible when there are sufficient educational supports. Unfortunately, it seems that there are difficulties for UMPC to occupy its position as personal educational device as much as we have expected.

We started to substantially inquire into meanings of UMPC, but what came across our mind were that making new teaching and learning activities to device is not really that happy. Since general devices are not made to be optimized for education, they cannot accommodate all of various educational activities, and it is thought to be unreasonable to expect that. Instead, it seems more reasonable to make personal educational device according to requirements of education. It won't be too difficult to timely combine already developed technologies according to the requirements.

References

- [1] Textbook Development Committee of Korea Information Education Society, "On Computer Education", Education Science Press, 2008.
- [2] http://en.wikipedia.org/wiki/Ultra-Mobile_PC
- [3] <http://www.microsoft.com/windows/products/winfamily/umpc/default.mspx>
- [4] http://www.businessweek.com/technology/content/mar2007/tc20070321_262804.htm