Analysis of Educational Applications of Smart Devices

Soo-Bum Shin 1, Jin-Hee Ku 2†, Ja-Hee Lee 3

1 Dept of Computer Education, Gongju University of Education
BongHwang-Dong, Gongju, 314-711, Korea
ssb@gjue.ac.kr

2 Dept of Liberal Education Mokwon University
Doan-Dong, Seo-gu, Daejeon, 302-729, Korea
jhku@mokwon.ac.kr

3 Dept of Computer Science & Engineering Chungnam National University 220
jahee@cnu.ac.kr

Abstract. As smart devices and wireless network got popular, efforts to utilize them in teaching-learning activities are being actively made. However educational utilization of smart devices remains at primitive stage such as using existing high-tech teaching apparatuses. Accordingly, this study tried to analyze the possibility to use smart devices in educational field and characteristics of recent smart devices. It is tried to propose the method to utilize smart devices for the educational purposes in classrooms based on wireless infra by analyzing the educational utilization of smart devices.

Keywords: Smart Learning Type

1 Introduction

Smart devices are compact devices using wireless network technology. People can learn even in a small classroom with compact smart devices using wireless network. Learners can communicate with many people in real time and non real time through SNS.

Many reports are being published regarding concepts of smart education from diverse perspectives[1]. However, studies on utilization type are not sufficiently made.

The recent utilization of smart devices is still at the primitive stage in which software provided by the smart device is used or existing high-tech teaching facilities are utilized. Accordingly, this study tried to analyze various educational applications of smart devices and to propose possibilities to utilize smart devices for educational purposes.

Actually, the studies classifying smart learning types are limited. Accordingly, this study intents to clarify the type of program to be developed by analyzing smart learning types.

† corresponding author

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2 The types and case analysis of using smart devices

In this study, the types of smart devices utilization in school education are going to be divided into three categories: sharing, analysis and reference. These three types are for smart devices, but they can also be used for existing PCs or laptop. As a matter of efficiency, however, it was judged that smart education can be more efficiently performed with smart devices and wireless networks.

<table>
<thead>
<tr>
<th>Type</th>
<th>Explanation</th>
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<tr>
<td>Sharing activity</td>
<td>Activity in which data and opinions are shared between students, or between students and a teacher.</td>
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<tr>
<td>Analysis activity</td>
<td>Activity in which students collect data and analyze it.</td>
</tr>
<tr>
<td>Reference activity</td>
<td>Activity which references the educational content previously covered by the students.</td>
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2.1 Sharing activity

Sharing activities are the most appropriate way to utilize personalized devices and wireless networks. Self-made software or software provided by smart systems can be used as well.

In Korea, this has been described mainly with the term ‘mirroring’, and it is the most common model of smart devices utilization in Korea[2]. The type of activity has the advantage that students’ screens can be quickly shared within the classroom, but interaction is impossible. This kind of data sharing practice was used even before smart devices appeared on the market. Especially, the Pico Map project based on PDAs by Palm was a very active research project[3]. In addition, there is also an area of sharing between students using SNS (Social Networking Services), such as KakaoTalk, Twitter, and Facebook which contain search features so that these can be defined as more advanced communication tools that can serve as both for information retrieval and for communication.

2.2 Analysis activity

Analysis activities are very similar to activities using existing PCs, but because smart devices are personalized devices, they are useful for field activities and individual activities. Such utilization can be used as a tool to investigate the natural world in science and to immediately analyze and deliver data to the server[4]. A field study using smart devices needs a lot of preparation and time, but it is a case in which the advantages of smart devices are well used.
2.3 Reference activity

Smart devices are small and personalized devices and textbooks are also personal items. Thus, the contents of textbooks can be used by depositing them into the smart devices. In other words, the use of this method is expanded as a form of combination of smart devices and textbooks domestically and abroad. As an example, the contents of textbooks were loaded on Kindle devices, replacing the existing textbooks in Clearwater High School[5]. Also, learning activities using educational software loaded on smart devices can be set as an area of reference.

3 Conclusion

In this study, smart device utilization types were analyzed and proposed that could include conventional educational software and PC utilization level and accommodate the advantages of smart devices. They were classified as sharing, analysis and reference activities. They are also available with conventional PCs and wired network technology but it is judged that people can do those activities more conveniently with wireless network and smart devices.

The classification of types will promote various kinds of educational utilizations of smart devices and can be utilized as materials to give high level classes through various utilization types beyond traditional teacher-centered classes. It is judged that continuous studies on cases and related tools that can utilize advantages of wireless and compact devices beyond the utilization of conventional educational software should be followed in the future.

References

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