Design of Mobile-based Personality Education Application for Young Children

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***Abstract*—In this paper, we study the design of the mobile learning system for personality education of young children. To this end, we survey the necessity and the requirements of personality education for young children. Then, we analyze the restrictions and the limitations of the current mobile-based personality education applications for young children. Furthermore, we investigate an efficient approach to overcome the limitations of the current mobile-based personality training application systems. Specifically, we present and apply the compensation system, which is featured in some game-based e-learning application systems. Our presented approach helps young children and their parents learn and teach personality using mobile devices, respectively.**

Keywords-e-learning; g-learning; personality education

I. INTRODUCTION

Smart devices have been widely used and the number of users of smart phones is over 10 million since 2011 for Korea [1]. Smart devices, such as smart phone, tablet, and laptop, have influenced information and communications technology (ICT) applications.

Mobility and portability are notable characteristics of the smart devices. Furthermore, they have the ability to run versatile operating systems (e.g., Android [2], iOS [3], and Windows RT [4]), which are comparable to PC operating systems.

It has been commonly revealed that one of the causes of recent crime is the failure of personality education when they were young children. Personality can be defined as a particular combination of emotional, attitudinal, and behavioral response patterns of an individual.

In this regard, the necessity of personality education is emphasized for young children so that they can have the desirable and moral experience, control theirs feelings, understand other people's emotion, and deal with personal relationships since they are young.

Furthermore, personality education for young children will promote communal spirit, respect, and the proprieties in the era of globalization and liberalization.

Therefore, encouraging personality education for young children is of foremost importance in current era to improve national competitiveness.

Recent years have witnessed that some parents permit their young children to use smart devices (e.g., smart phone and tablet) in public places in order to avoid making a noise by the young children.

This signifies that although the parents are worried about exposure of the harmful contents to their young children, smart devices are used in their spare time with their young children. In this context, it is necessary to design a mobile-based personality education application for young children using smart devices.

II. RELATED WORK

A. Mobile Learning

In this study, we focus on Android-based mobile devices because Android has the majority of the market share among mobile operating systems.

Android was initially developed by Android, Inc., Google backed financially and later bought in 2005, and was unveiled in 2007 along with the founding of the Open Handset Alliance: a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices.

Because Android is open source, it is allowed the software to be freely modified and distributed and has a large community of developers writing applications. In this reason, developing mobile learning contents for Android-based devices is also suitable.

Since Android consists of a kernel based on Linux kernel version 3.x, with middleware, libraries, and application programming interfaces, it supports various hardware platforms. Furthermore, it has portability to run application codes on top of the Dalvik virtual machine with just-in-time compilation.

Another characteristic of Android is the flexibility. In other words, some off-the-shelf applications can be replaced by other applications provided by app stores, and some applications are compatible to various devices such as smart phones and tablet.

B. *Personality Education for Young Children*

Personality education for young children deserves emphasis because it will be the foundation for defining the goals and decision of wise judgment as the young children grow.

In fact, it is necessary to develop the abilities for understanding and respecting other persons, the hospitability of other persons, decision-making, controlling emotion, and delaying gratification.

These abilities can be built based on pro-social behavior, emotional intelligence, and self-knowledge of emotion through personality education for young children [5]. The purpose of personality education for young children is to help them to assess the virtue and value, and therefore, to internalize them and habituate.

Alternatively, one could do a volunteer activity or meditation as a way of personality education. A volunteer activity is intended to promote good or improve human quality of life; in return, this activity can produce a feeling of self-worth and respect.

While meditation is a practice in which individuals trains the mind or induces a mode of consciousness to realize some benefit. The principle of personality education should be perceived for having wide connections with persons, contributing the community and considering other persons' sentiment.

C. *Game-based e-Learning*

G-learning refers to the game-based learning that uses learning contents in games for the purpose of education [6]. G-learning has been getting a lot of attention since it is designed to balance a subject matter with gameplay and the ability of the player to retain and apply the subject matter [7].

While game-based educational mobile applications are of great economic value and have a great potential for growth, it is still at a preliminary stage in Korea. Therefore, research and development related to g-learning is increasingly being investigated in information technology and education fields.

G-learning may contain the following elements [8]: fun, play, rules, goal, interaction, outcome, feedback, adaptation, win state, conflict, competition, challenge, opposition, problem-solving, representation, story, enjoyment, pleasure, involvement, structure, motivation, doing, learning, flow, ego gratification, adrenaline, creativity, social groups, emotion, etc.

D. *Analysis of the Existing Applications*

There are a number of applications that intended for personality education for young children in Korea. Most of them are based on video on demand (VOD) and a few applications have been focus on just-in-time learning related to the real world for young children.

More recently, parents, who are familiar with smart phones and tablets in their 20's and 30's, of young children have been interested in educational applications for young children. Some of the existing personality education applications for young children tend to use a popular character for the purpose of profitability, rather than to provide various types of educational environments.

Specifically, the majority of these applications consists of children's songs, fairy tales, and fables.

Therefore, they cannot satisfy a variety of needs and requirements of young children and their parents.

E. *Wingko*

Wingko [9] is an application that is composed of educational contents and is focused on fundamental habits of young children.

It allows young children to learn fundamental habits with animations and songs.

FIGURE I. WINGKO

One characteristic of Wingko is that it can be used by touching the screen as they are playing games learning fundamental habits.

Thus, it is designed to optimize the learning effects. A planner of Wingko mentioned that the applicability of the fundamental habits for young children depends on the parents' role not only in mobile learning environments but also in the real world.

For this reason, Wingko features 'solution & tip' for young children in order to guide the parents to understand underlying feelings of young children and the guiding principle. Although Winko is different from other personality education applications (i.e., the young children may get indirect experience.), the applicability of the habits from the application depends on the parents' role.

Because it is difficult to assimilate the young children's learning environment with their parents. As far as the learning environments are concerned, it is essential that the young children be accompanied by their parents when using the personality education applications and the parents should guide the young children in everyday lives.

F. *Subin Story*

Subin story [10] is an application that provides a VOD service of 3D animations for young children. The contents are originally the DVD titles for the purpose of personality education of young children.

FIGURE II. SUBIN STORY

A developer of Subin story mentioned that it is intended to call the attention of the young children and to allow the parents to have a rest by providing various examples of everyday life stories.

However, this application has no differentiation factor other than the streaming service of animations of children's songs, fairy tales, and fables. Thus, the improvement of the effectiveness of the application is hard to be verified compared with other related applications.

III. DESIGN OF PERSONALITY EDUCATION APPLICATION

In this study, we design an Android based personality education application, entitled "That's good, Pong-pong-i". We note that 'pong-pong' is an onomatopoeic word in Korean.

We use one of the phrases of praise (i.e., "that's good") in the title, because we conjecture that this phrase may imply the situation that the effect of the praise make the young children better.

Henceforth, we use the terms "That's good, Pong-pong-i" and "Pong-pong-i" interchangeably.

Pong-pong-i is designed through a comparative analysis of the existing personality education applications by analyzing advantages and disadvantages of them.

TABLE I. APPLICATION DESIGN CATEGORIES AND COMPONENTS

Category	Component
Emotion education	Self-emotion awareness, self-control ability, self-motivation ability, and empathy
Living habits	Health and safety regulations, Having meals and sleep, language habits, and bowel habits
Personal relationships	Communication ability, human relationship formation, cooperation, competition, concession, persuasion, and permissiveness
Morality	Discipline from examples, moral education by imitating their parents, and the proprieties in public places

The design considerations of Pong-pong-i are as follows.

First, we take emotion education, living habits, personal relationships, and morality into account after analyzing necessity and application areas of personality education. Therefore, these four categories are considered when designing Pong-pong-i. When separating of the contents into the four categories, we considered educational environments, in which parents and families may be involved in using the personality education application [11].

Second, we explore the storytelling approach to improve concentration as well as to call attention to the application, optimizing learning effects and inducing participation of young children.

Third, we apply a compensation system, which is often used in a game-based e-learning system, to the application to encourage the young children. More specifically, upon completion of each story (module), a special item is rewarded to the young children and the item can be used in the next story (module).

Fourth, Pong-pong-i is designed to allow the parents to participate in personality education. In other words, the parents of young children can check the progress of learning and applicability in the real world by using the application.

The feedback mechanism is also applied allowing the application to be proceeded to the next story (module) by the parents.

Fifth, it is designed for not only young children but also the parents of young children to improve the effectiveness of personality learning.

With this in mind, Pong-pong- i gives an opportunity for the parents to recognize the necessity of personality education and to consider proper methods and procedures of personality education.

Lastly, to prevent the improper uses of the application, we require a password for the parents to access the monitoring function that displays status of learning process for young children.

IV. CONCLUSION

In this paper, we have explored the existing personality education applications based on Android and proposed an approach to design the personality education application for young children by considering the limitations of the existing applications. Through developing the proposed application ("That's good, Pong-pong-i"), it can achieve the effective personality education for young children, providing the easy access without limitations of time and space. Furthermore, the proposed personality education application for young children keeps the users more motivated than the previous applications that have relatively simple features such as VOD streaming of children's songs and fairy tales. The future works include verifying the effectiveness of the fully implemented application based on multiple users' feedback of our application and the improvement of the application. Because there are few research efforts on evaluating the effectiveness

of personality education applications for young children based on smart devices, we will also look into the effective method to measure results of the applicability of personality education applications.

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