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AN M-LEARNING TOOL FOR PRE-SCHOOL KIDS

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ABSTRACT: The importance of technology is incontrovertible in today's world. The effects of it surround the life of human in everywhere and every time. The young students, especially pre-school period children, learn how to share and socialize, to make cooperation and take place in teamwork. During pre-school period they learn new things and their talents. Children have the chance to learn new things which can affect their grown period. They learn how to use their brain for learning new things and so they can be aware of their talents with the help of this study. In this work, we describe a novel M-Learning process with our M-learning tool. This process is especially developed for pre-school children. The main factor in this process is using the technological devices which affect the education period of children and the teaching period of teachers. This tool also gives a chance for the parents to observe the improvements that occur in the learning capacity of their children and children also can have fun while they are learning new things.

Keywords: E-learning, m-learning, pre-school, education technology

INTRODUCTION

The use of information and communication technology (ICT) improves learning, especially when it couples with learner-centered instructions or convenience (Zhu & Kaplan, 2002). The learning and exchange with the instructor can take place asynchronously at the learners own pace or on an as-needed basis (Palloff, R., & Pratt, K., 2001). Additionally, wireless devices are highly individualized and collaborative communication tools. They give exclusive flexible tools for complementing the existing technologies and extending the learning beyond the classrooms and homes from remote places like airports or trains where students do not have access to computers and the internet (Virvou, M., & Alepis, E., 2005).

E-Learning is an education method with internet, network or standalone computer. This means to use electronic applications and processes in order to learn. E-Learning includes web based and computer based learning processes, virtual classrooms and digital collaborations. The content can be delivered via the internet, intranet/extranet, audio or video tape, satellite TV or CD-ROM. This system was called as "Internet Based Training", and then it was called "Web Based Training". On the other hand, E-Learning does not only cover training and instruction, it also covers the learning process which is adapted individually (Tavangarian D., Leypold M., Nölting K. & Röser M., 2004), (Ajayi & I.A., 2008).

Mobile learning (M-Learning) can be defined as portable technology together with wireless and mobile phone networks. This situation helps to facilitate, support, enhance and extend knowledge transfer for teaching and learning. Mobile learning is a new type of learning model. By M-Learning a person can use the mobile devices in order to learn something. M-Learning is formed in the background of knowledge exploding. It synchronizes the characteristics of modern education thought, computer network technology, mobile communication technology and multimedia technology. M-Learning can also be defined as a highly situated, personal, collaborative and long term applications, which means learner-centered learning. M-Learning also provides more flexible and managing methods for instructors and educational administrators (Mhaisgawali A. Ajayi & I.A., 2008).

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There are lots of countries in the world trying to integrate information technologies into their education systems through the policies they follow and the projects they make in order to realize better investments for their future. In this work, we proposed an M-Learning tool for pre-school children, which is described after given related work.

RELATED WORK

The first M-Learning application is proposed in (Farooq, U., Shafer, W., Rosson, M. B. & Caroll J. M., 2002) as an extension of existing personal computer based online learning, MOOsburg, for mobile devices. It allows students participating in community education programs on environment and ecology to discuss their findings from remote field trips. As students collect and analyze environmental data they can either chat with their peers or interact with a database on the server.

Similar M-Learning project extended an internet based virtual university to mobile devices by developing an M-Learning platform called WELCOME (Wireless E-Learning and COMmunication Environment) (Lehner, F. & Nosekabel, H., 2002). The platform complements the E-Learning environment by translating some contents for mobile devices and supplements new information such as event alerts, phonebook, calendar and other campus services. Both systems combine the browser-based pull technology with WAP-based push technology to enrich the students learning experience and support the conversational theory of learning.

Two other studies at European universities have focused exclusively on the use of SMS technology as collaboration tool for M-Learning. The former one (Bollen, L., Eimler, H. & Hoppe, U., 1999) emulated a mobile device on a PC in order to allow students sending SMS messages on various discussion topics which were aggregated and categorized by the instructor by using an electronic whiteboard in the classroom. The categorization can be done by criteria such as sender, receiver, time and others. And, the latter one (Stone, A., Briggs, J. & Smith, C., 2002) evaluated the effectiveness of SMS campaign as a conversational mechanism in context of developing the quality of mobile teaching and learning environment. The effectiveness of SMS campaign was measured by quickness of the response, the quality of data collected, the impact of message complexity on number of responses and the method of campaign announcement on quality and quantity of messages. These studies show that students liked using SMS and they were responsive to the use of mobile devices for interaction and learning. The response rates were high, the quality of the messages was acceptable and SMS responses were much quicker than e-mail responses. Both these studies experiment with popular mobile messaging services in order to see they would work in M-Learning environment and provide support for the conversational theory of learning.

The examples and existing works demonstrate the potential of M-Learning applications in education. Considering the usage and popularity of mobile devices with the student population, they cannot be ignored in any learning environment, especially for pre-school ages.

SYSTEM DESIGN

We proposed an M-Learning tool for pre-school children, at the same time it covers all features of E-Learning tools. The beta version of the system is ready and children can use computers, tablets or mobile phones to learn, play and relax. Our application is made of four modules, three of which support learning and one is analysis of activities.

The first module is learning module. By this module, children can learn many concepts like animals, colors, fruits, numbers in levels and they can examine what they should get. Parents can trace their children's progress from gains page. The second is the game module. By this module, we can provide educational games such as memory games, painting and math games. In game module, children reinforce what they have learned with these games. The third one is the story module. By this module, children can listen stories and watch animations. This module helps parents so they can be relax about reading stories to children or children can also listen stories from phone. The last one is the statistics module. By this module, parents can easily check the analysis of learning processes of the application.

Figure 1. Main Screens Of Applications.

The learning and examining processes are divided into levels in each of concepts. As level goes higher the difficulty of concepts goes higher and upper levels cannot be reached before the lower is complete. In the first version of our M-Learning system, the learning module includes 14 types of basic concepts which are supported by visual and sound effects and animations. Besides interaction with the touch screen is provided.

Table 1. Concepts Included In Learning Modules

Concept Name	Number of Levels
Colors	3
Numbers	4
Fruits	4
Vegetables	3
Animals	6
Family	1
Objects	1
Rooms	1
Toys	1
Travel	1
Stuff	2
Clothes	2
Food	1
Body	2

We have yet developed 5 games to strengthen to learned concepts, in the game module.
Memory: Classic memory match game with pictures of what children learn in the learning module.
Which one is the different: Finding and choosing the different one from random pictures of what children learn in the learning module.
Mathematics: Simple addition operations with numbers (1-9).
Finding Differences: Finding differences between two images.
Shape Painting: Painting the shapes such as triangle, square, circle and learning them.

Figure 2. Games Module Of Application.

Story module includes 3 classic stories. These are Rapunzel, Puss in the Boots and Cinderella. In story module parents can read the stories to their children or children can easily listen the stories themselves.

Figure 3. Stories Module Of Application.

The statistics module is the most important module for parents to observe the progress of the children. The parent who logs in our application will be able to see success, mistakes and learning abilities of their children.

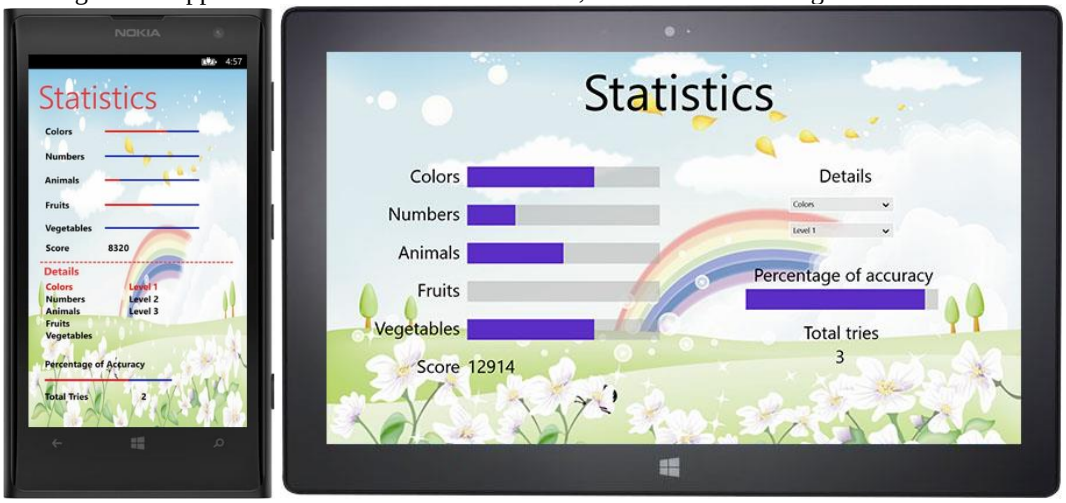

Figure 4. Statistics Module Of Applications.

For now, the application can operate in three languages which are English, German and Turkish but our design allows us to add more languages easily. In this way, the application will also contribute to the learning of foreign languages, at least familiarizing with the words in other languages.

RESULTS AND CONCLUSION

The beta version is now available in Windows 8 Store and Windows Phone 8 Store currently. In addition, as a future work it is planned to implement and make it available in the Google Play Store. The current version of the application has downloaded about 15 thousand times in first 6 months.

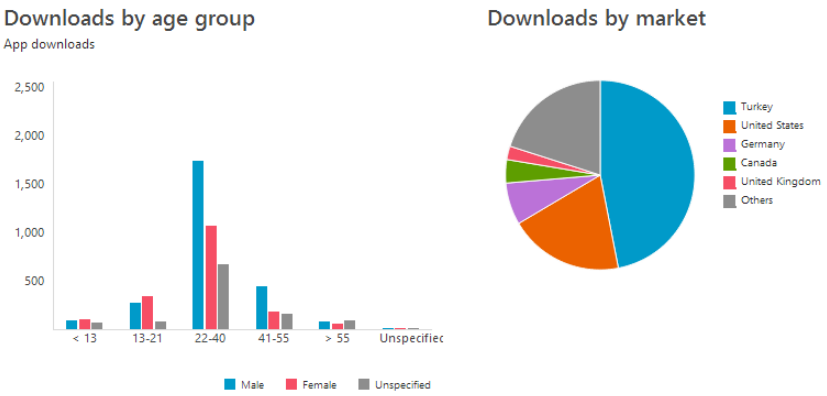

Figure 5. Windows Market Download Statistics.

When we look at the data, we see that the majority of downloads is coming from the middle-aged parents. The markets that have downloaded most are Turkey, US and Germany because of language support.

We created a parent satisfaction survey and published on the web. Currently some of parents had been fill out our survey. Their children are between 2-7 ages and 64 % of children go to kindergarten. In the results, %60 of children uses our app at least twice a week. We asked parents some questions. Here the ratings out of 5 stars.

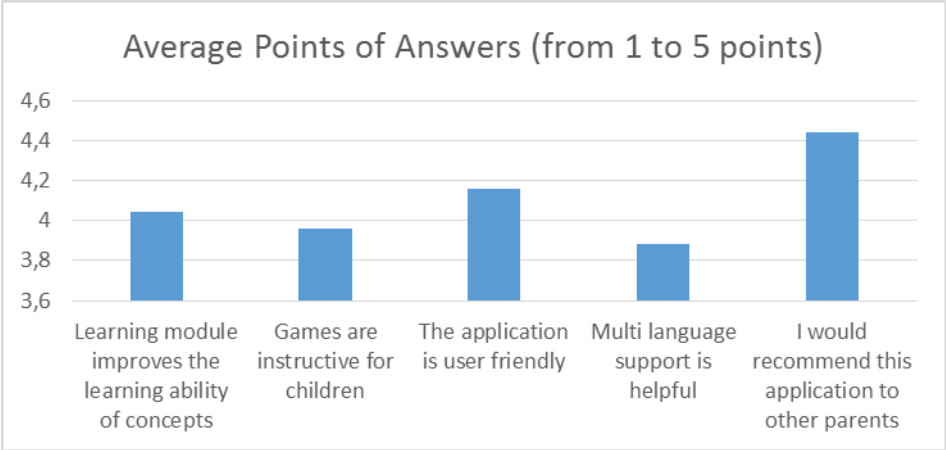

Figure 6. Results of Parent Satisfaction Survey.

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