DESIGNING AN INTERACTIVE PROGRAM IN ARABIC FOR PRESCHOOL CHILDREN USING Q-MOLD PROGRAM

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Abstract: The current era is characterized by a vast amount of knowledge and information, technical progress and a rapid change, which some have called the age of digital information. Interactive program is a modern technology with a positive impact in the field of education as an educational tool and has proven its importance in this area. The objective of this research is to present a new concept aimed at designing an interactive program for preschool children using Q-Mold program. The program is especially dedicated to introducing literacy concepts and skills to children, then evaluating their learning based on a system of varied questions in an interactive way. Moreover, the program is designed in a way that allow the teacher to choose the way concepts introduced and how they can be assessed. The outcome of this research which is the interactive program should be tested in future research to evaluate its effectiveness in teaching and evaluating preschool children.

Keywords: interactive program; literacy; evaluation; preschool children; Arabic

I. INTRODUCTION

The current era is characterized by a vast amount of knowledge and information, technical progress and a rapid change, which some have called the age of digital information. It may be recognized that, in order to better achieve the aims of education, the need to use the so-called information and computer technology (ICT) related to educational work including teaching and learning and other activities [1].

Interactive program is a modern technology with a positive impact in the field of education as an educational tool and has proven its importance in this area [2]. Educational trends have therefore been adopted as a technique and a quick and feasible method of completing educational programs and achieving their objectives especially in the field of early childhood education (ECE).

The objective of this research is to present a new concept aimed at designing an interactive program for preschool children using Q-Mold program. The program is especially dedicated to introducing literacy concepts and skills to children, then evaluating their learning based on a system of varied questions in an interactive way. Moreover, the program is designed in a way that allow the teacher to choose the way concepts introduced and how they can be assessed.

In this capacity, the researchers oppose that, an interactive program for teaching and evaluating literacy concepts and skills for preschool children need to be developed in Arabic language to overcome the language barrier of similar programs that are available in the market. Such a program can for example an asset to teachers while in teaching or evaluating children. Confidently, the accomplishment of the interactive program in this research would bring the innovation needed by children as well as teachers especially in the preschool provision.

As for the remaining part of this research, section II introduces the background followed by the designing process in section III. Section IV presents the application process of the interactive program, then a critical evaluation of the designed program appears in section V. finally, conclusions and future work is recommended in section VI.

II. BACKGROUND

Studies have been numerous, which indicate shortcomings, and many faults in exposing preschool children to (ICT) where they do not reach the level of comprehension, understanding, and mastery [3], [4]. Students who do not participate in educational activities involving direct interaction in classroom, their motivations become less than students interacting with the computer [5]. Instead, educational media tools based on teaching and e-learning are superior to other traditional educational tools because they provide an opportunity for interaction between the learner and the subject of learning and provide the learner with cognitive expertise not provided by other tools [6]. There are many studies on the importance of ICT use and educational software in education, and specifically related to utilizing interactive teaching programs for preschool provision in Saudi Arabia [7]. These studies have concluded that the use of various types of educational software and interactive programs is the best way to improve the quality of learning and raise the achievement level of educational goals and skills at less time, effort, and accomplishing differentiation of teaching [8]. The low level of achievement in basic education for students in Saudi Arabia is one of the problems facing the ministry of education especially in the science subject [8]. This is because individual differences are not considered during the teaching process. Research indicates that using ICT fulfill individualization of education, as technology offer more opportunities based on interest, ability, and time [ ]. With the increase of ICT applications in all domains of life in general, and learning and teaching particularly, a new pattern has emerged that replace the common traditional patterns of teaching especially where the teacher is substituted by computerized educational programs, and the tutorial program is based on full individualized learning.

The Saudi experience has been limited to the use of computers in education as a subject of study only or for teacher support, without being used as an educational tool, because of the lack the existence of good interactive programs in Arabic mostly [10]. Resulting in a need to improve interactive programs used in teaching preschool children to consider their cognitive patterns to increase motivation and children's learning, increase their enthusiasm towards learning, and develop their literacy and math skills attainment.

III. DESIGN THE INTERACTIVE PROGRAM

The main purpose of designing the program is to be a useful tool for acquiring the capacity to realize the child's learning abilities and contributing to motivate teachers by scheming their educational units in a creative and appropriate way for children. Another important role is to help teachers in designing the contents of educational activities productively by adding background, sound, and appropriate pictures to the educational and evaluation activities.

After searching for programs that are similar in achieving the objectives from using the Q-mold program, it was found that most of them are not age appropriate and do not support the Arabic language if any, it supports Arabic if the questions are presented only without the possibility of modifying the topics to suit the educational units or the selected literacy concepts. Also, there is no flexible program that support the teacher in adding what she wants and designing the activity and the skill she wants to evaluate for each child.

In this section, therefore, the researchers present a detailed explanation of the interactive program design for literacy skills using Q-Mold. The designing of the interactive program fulfills these objectives as follows:
1. To evaluate the child's cognitive performance.
2. To develop different educational units that introduce literacy concepts for preschool children that are age appropriate in an easy way.
3. To support the teacher in the process of child's cumulative and summative assessment.
4. To train teachers to apply the program in designing wide-ranging activities.
5. To help teachers to select pictures, sound etc. in designing appropriate questions that will be used in the evaluating the literacy skills of children.
6. To give teachers options to differentiate activities based on children's abilities and to form it to an individual child or group of children.
7. To help teachers to keep track of children's performance in individual portfolio.
8. To give children more opportunities to experience with interactive programs.

In designing the interactive program, several programs inspired the designing process such as Quiz Creator, Hot Potatoes, Matchware Mediator, Microsoft Office Interface, and a sample of children's software and interactive games. The principles underpinning the design of the interactive program include achieving educational goals and supporting curriculum modules through providing simple, specific goals in the form of questions for children that can be evaluated and assessed. Providing displays in an interesting way is an additional principle that was considered, and examples or simulations. The teacher ensured that children learn the literacy concepts prior using the program which means that concepts introduced are not the children's first encounter. The program is built to provide direct feedback and enforce children's mistakes and direct them to the correct response. Additionally, the program introduces visual and sound stimulus that are appropriate to children's cognitive and emotional level. finally, each concept is defined besides the accompanying evaluation questions in one theme for ease of comprehension to the children.

The program contains five types of questions: multi-choice, matching, ranking, relationships, and graphs. The program supports the Arabic language in terms of input and program interface, depending on the Microsoft Office interface, as it gives the capability to insert pictures, sounds, and videos while choosing the appropriate questions and answers for the preschool children.

Finally, the interactive program presented in this research has been designed in such a way to allow for improvements or modifications in accordance to the educational units presented to the children or their abilities or interests. Also, it can accommodate new contributions that may emerge because of technology evolution. To the best of the researchers' knowledge, this is an innovative contribution towards enhancing literacy skills for preschool children in Arabic language. The next section presents the application of the program.

IV. APPLICATION OF THE INTERACTIVE PROGRAM

Throughout the designing process, the program is piloted with a sample representing (25) children age (5-6 years) in the childhood studies center at king Abdulaziz University with (8) teachers willing to cooperate with the research. All children are engaged in an ongoing assessment with the interactive program. The interactive program is demonstrated also to (15) academics in the field of Early Childhood Education (ECE) representing the Childhood Studies Department, where their opinions were considered in the designing process including: interface, cartoon characters, questions, sound/visual stimulus and other components of the interactive program.

The program is uploaded in the classroom computer for accessibility to the sample of children, and the teachers' room thus they can experiment in adding questions or literacy concepts. The mechanism of the program is explained to the sample teachers as follows:

The program starts by opening a window (initial stage) so that the teacher formulates the questions for assessment (fonts – colors – question type – feedback – buttons colors), after finishing the questions design process, she opens the questions window to choose the question she wants to apply. Inside the question window, the teacher can insert different stimulus (sound or visual) to motivate the child to go through the selected questions. Assessments start by displaying questions for the child, and if the child is unable to answer, hints are offered to help him through. If the child

answers correctly, the program will put forward a positive feedback to encourage the child to continue to the following concept. The program will keep the results of each child in the database with the possibility of specifying the time taken to resolve each question. The program at the end of the assessment displays results to both the teacher and the child.

V.   CRITICAL EVALUATION OF THE INTERACTIVE PROGRAM

The designed interactive program in this research is an innovative contribution in the preschool provision since it is directed to enhance literacy skills for young children. The program has the capabilities of easy to use interface using visuals and sounds that are developmentally appropriate for preschool level. furthermore, it has a built-in database that keep records for each child's development and assessment. This also implies that; the program can as well help teachers in planning further educational activities to strengthen children's weaknesses and motivate advanced children. In addition, the program has cartoon characters that direct children during the evaluation (process Photoshop, Flash Maker, and Illustrator were used in creating cartoons).

IV.   ACKNOWLEDGMENT

V.   REFERENCES

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Besides, the program provides the possibility to set timing for each question depending on the concept that evaluates, it means that each child could learn in different timing.

VI.   CONCLUSIONS AND FUTURE WORKS

As explained in this paper, and even though the trend now is towards utilizing ICT in teaching young children, however, this is not a proposal for replacement of traditional education. Rather, interactive programs can provide a very useful alternative for traditional education especially in cases where it is not applicable to teach through traditional methods. In future, a field study will be conducted on children at preschool level to assess the effectiveness of the designed interactive program with larger sample or experimental groups. To be able to generalize the outcome results, different programs will be used and apply them to different concepts and skills. In order also to reduce possible bias in the results, groups of both children and teachers will be selected randomly. Future studies should also include studying some other factors, particularly possible drawbacks, of using those interactive programs on children.

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