Designing an Early Childhood Education (ECE) Program for Preschooler using Visual Basic 6

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Abstract

This paper presents a program for learning children (like a game) for age (3 - 5) years named preschooler. This program provides sound playing for someone pronounces the English and Arabic numbers and letters three times for each one who clicking from mouse or press from keyboard the number or letter using audio playing within visual basic 6. As we know children have low recognition capability between capital and small letters. This program deals with these two cases and it is done with visual basic 6 and VLC media player 2.0.5 and format factory 3.1.1, the result is compared with work"play a sound file in visual basic 6"the second work deal with English letters and numbers learning only .This paper works with English and Arabic letters and numbers and has more sound capabilities

Keyword: Preschool, early childhood education, API, NAEYC, file format

1- Introduction

The first years of children life learn a lot of about the word around them and themselves during this period of time the parents are the first teachers who teach kids how to walk, speak, eat. Early childhood is a stage of human includes toddlerhood until the nine age [1]. "The National Association for the Education of Young Children (NAEYC)" defines" early childhood "as it is occurred before eight years old and through this period of age children's" brains develop faster than any other point in their lives so these first years are critical" . The emotion and social skills, world perception and cognitive development of children have a frontal effect on their universal development and fully grown they will become [2]. So for theses reasons the importance for the education of early childhood became very important, demanded.

2- Classification of kids age [2]

Kids can be classified into three stages:

1- Infant: from birth to one year old.
2- Toddler: from one year old to two years old in this stage mobility of a child can be increased that can be walk, run, jump and be recognized in pictures and mirror.

3- Preschooler: three to five years old.

3- Preschool

Preschool is a daycare. This misconception because daycare is childcare without any focuses on learning, preschool is first formal learning given it to the child. Preschool emphasis on social and cognitive development by growing imaginative thinking and curiosity of a child. Child can learn by interacting with their teachers and other children [3].

4- Early Childhood Education (ECE)

ECE is a term used to express any kind of educational program that be of service to children in their preschool age before they enter to kindergarten. ECE may contain any number of activities and expertise designed to assist in the cognitive and socialite development of preschool age before they go to elementary school. [4]

The first ECE initiatives were in the United State of America named Head start program at 1965, was created ." this federally funded education initiative, funded by the Department of Health and Human Services. ECE can be very different from one program to another and one state to other. Teachers of preschool have important function on the preschoolers lives some of children may lake appropriate experiences at home [5]. The professionals' teachers help children [6]:

- To be familiar with stories books and printed images.
- To learn sounds and letters.
- To learn counting.
- To learn Numbers recognition.
- To increase children knowledge.
- To learn language development.

5 - Technology role in early childhood education

Today technology has a positive role in children's learning and development. Children are crazy to technology. it's necessary to provide early learners kids time to create, play and imagination. Now early children education used technology as a part of their classroom with increases used of software and technology now. Introducing software to young children at a very early age is sensible decided in order to prepare them for handled devices in their coming future such as desktops, laptops, tablet and mobile phone these tools may used them in the schools [8].

As we see using the computers is increasingly and became a part of preschoolers' life. "From 80 percent to 90 percent of early childhood educators attending the annual conference of the National Association for the Education of young children report using computers" [7].

The following trending technology tools used by teachers of early childhood in the classroom [4]:

1- Application: many programs can install on laptop, iPad for example.
2- Video sites education: now teachers no need for library of DVD collections because via a click of mouse can play educational video available ex."TeacherTube", "SafeShare.TV" websites.
3- Interactive whiteboards: touch board electronic such as SMART board.
4- Digital storytelling: many websites encourage kids to convert creative imaginations into digital story online. ex. "Story Bird", Little Bird Tales.
5- Collaborative resources: communication classes with another classes in other schools using for example "Skype "program or " the social Platform Edmode" connects classes.
6- eBooks: ex "Disney", "we give book" websites provides books.
7- Virtual timers: ex. "Online Stopwatch" a program offers many "teacher timers", countdowns, clocks to help students in self-regulation and finish their work.
8- interactive websites: there are many charming websites for early children learning "starfall is a phonics- based website for children".

6- Sound record program

Is an audio recording program in most versions of the Microsoft Windows.

7-File format

Is a way for encode information to store it in a file of computer, such as " JPEG" format of file is designed to store "static photographic images" [14]

8 – Format factory program

Format factory program Is a "software package freeware multimedia converter" that converts audio, video and pictures files and can capable of tearing CDs and DVDs to another file format also can create any file format as well as link multiple video files together into one.[11]

9- Windows API

"Application Programming Interfaces" contains one or more DLL files that provide some functionality, DLL files contain many functions that any application in windows operating system can call it to work with it [7].

10- VLC media player (VLC) [9]

Is a free and open source, portable and cross-platform media player developed by the VideoLAN project. VLC is available for desktop operating systems and mobile platform such as Android support many audio, video compressions and file formats.
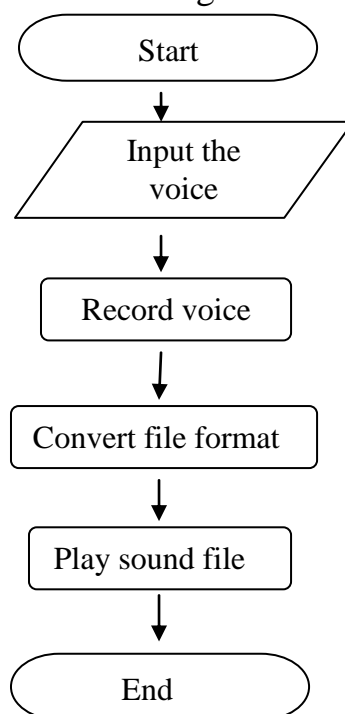
11- Proposed algorithm

Step 1: record my voice that pronenes the English, Arabic letter and English and Arabic numbers using sound recorded program in windows 7.

Step 2: playing these files using VLC media player program, where these files with extension "(.wma)".

Steps 3: convert the file format from windows media "(.wma)" file format to wave file format using format factory program for playing theses sound files from visual basic 6 program.

Step 4: children can play these file with a program with vb6 from click using mouse or press from keyboard for English and Arabic letters and numbers.

The following figure acts the following chart for the proposed system:

```
        ( Start )
            |
            v
        / Input the  /
       /   voice     /
            |
            v
      [ Record voice ]
            |
            v
    [ Convert file format ]
            |
            v
     [ Play sound file ]
            |
            v
        ( End )
```

Fig(1) flow chat for proposed system

12- System implementation

The proposed system is built on using Visual basic 6 under windows 7, format factory 3.1.1 and VLC media player 2.0.5 programs. The first interface of program as shown in figure (2) contains five commands button as following English Letters, Arabic letters, English numbers, Arabic numbers and END command. When click on English Letter it will open the form 3 (English Letter) as shown in figure (3), click on Arabic letter will open form 4 (Arabic Letter) as shown in figure (6), click on English numbers will open form 2 (English num.) as shown in figure (5), click on Arabic numbers will open form 5 (Arabic num.) as shown in figure (7) and when click on End will finish the program.
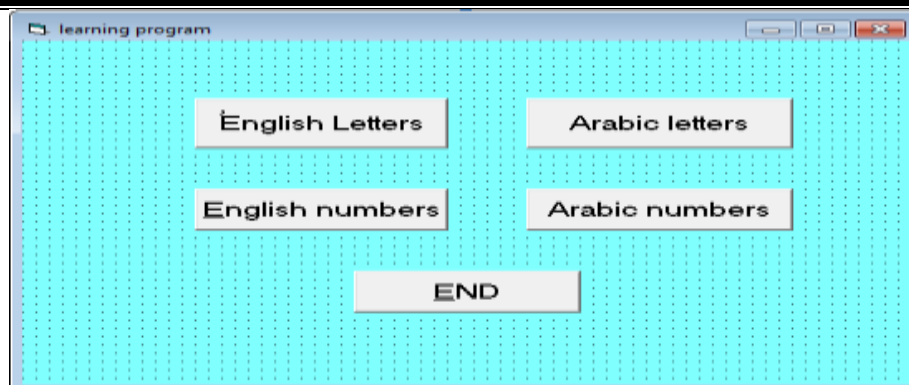
Fig(2): main interface of program

When the child clicks on English Letter command, will open the new interface as shown in figure(3) contains 26 commands button this interface designed by creating control Array, it is a group of controls of the one type object (in this paper used command button) with the same name but with unique values of index property for example the command A the name property set to Command2 and the caption property set to A and the index equal to 0 and the command B the name property set to Command2 and the caption property set to B and the index equal to 1 and so on.., When executed any one of command buttons it will share the same click events procedure because we used control Array.
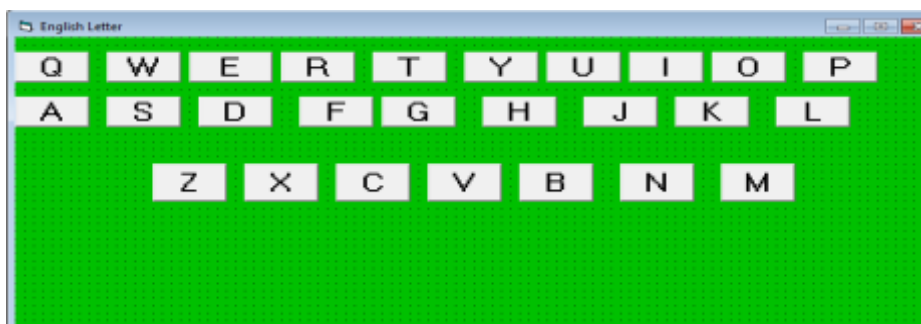

Fig (3): the interface of English letters

- English letter interface has two actions:

a- when the kid clicks from mouse

As seen in the fig (3) the 26 command buttons are arranged to the same of the "layout of the Q-W-E-R-T-Y keyboard" to be easy for kids because the same keyboard of the computer which they often use. When click on command button A will play sound file proneness A three times and when click on command B will play a sound file proneness B three times this done for any letter above clicked, visual basic program used windows API to play sound file.

b- When the kid press from keyboard

This action for the children who wants to use keyboard not mouse to type the letter when press on letter in keyboard the sound file pronounced that letter three times will playing, to enable this action we must need to do in the program the following steps:

First, set the " KeyPreview" property of the form 3 to true as showing in the following figure(4).
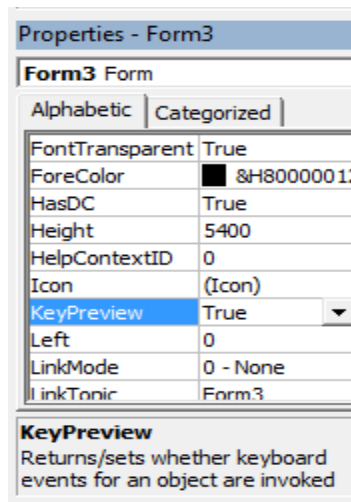
Fig(4): keyPreview property

"Setting the KeyPreview property of the form to true, turns on the KeyPress property of the form" that means any time the children press on any key, "the KeyPress Property of the form is triggered". We must take into consideration the users of a program are children and the children don't know what key press to get upper or lower letter or what the differences between upper or lower letter we need to deal with children pressing both upper and lower letter equivalent this means when child press 'a' letter must treat as letter 'A' in the English letter interface and will play the sound file proneness latter 'A'.

In the following table (1) the English letters of the alphabet upper and lower case and the Ascii code for each letter [12].

Table (1): Ascii value for English letters

The character	Ascii value	The character	Ascii value
A	65	A	97
B	66	b	98
C	67	C	99
D	68	D	100
E	69	E	101
F	70	F	102
G	71	G	103
H	72	H	104
I	73	I	105
J	74	J	106
K	75	K	107
L	76	L	108
M	77	M	109
N	78	N	110
O	79	O	111
P	80	P	112
Q	81	Q	113
R	82	R	114
S	83	S	115
T	84	T	116
U	85	U	117
V	86	V	118
W	87	W	119
X	88	X	120
Y	89	Y	121
Z	90	Z	122

We concludes from table(1) the ascii code for "A"=65,the ascii code for "a"=97 and the "97-65=32",for this conclusion we write a code to processing the case of if the children press the letter "a" the program will convert it to letter" A" by this equation "97-32=65" and playing sound file for letter "A".

" if keyAsci >= 97 And KeyAsci <= 122 then"

 "   keyAsci = keyAsci – 32"

" End if "

When the child clicks on English numbers command in main interface of program figure(2) will open the new form as shown in figure(5) contain ten command button for numbers and one "End" for end this form.
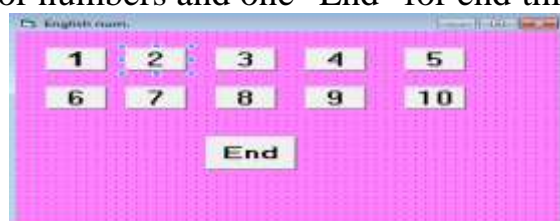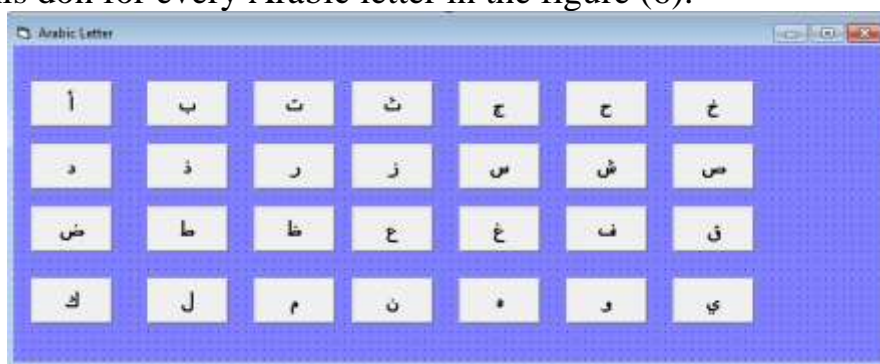

Fig(5): English numbers interface

- This interface contain two action
    a- when the child click's from mouse on the first command "1" will play a sound file proneness one three times and when on 2 will play a sound file proneness one three times this don for every number in the figure (5) and "end" command will end the form English num.
    b- When the child presses from keyboard on any numbers key from 1 to 9 will play a sound file proneness that number three times .the following table(2) contain ascii code for numbers used in program[12].

number	Ascii
Zero	48
1	49
2	50
3	51
4	52
5	53
6	54
7	55
8	56
9	57

Table (2): Ascii code for numbers

When the child clicks on Arabic Letter command in main interface figure (2) will open the new interface in figure (6) when child click using mouse on the first command "أ" will play a sound file proneness " أ"three times and when click on " ب" will play a sound file proneness " ب " three times this don for every Arabic letter in the figure (6).

Fig(6) Arabic letter interface

- when the child clicks from mouse on Arabic numbers command in main interface figure (2) will open the new interface in figure (7) when child click using mouse on the first command "رقم 1" will play a sound file proneness "واحد" three times and when click on " رقم 2 " will play a sound file proneness "اثنان" three times this done for every Arabic letter in the figure (7).
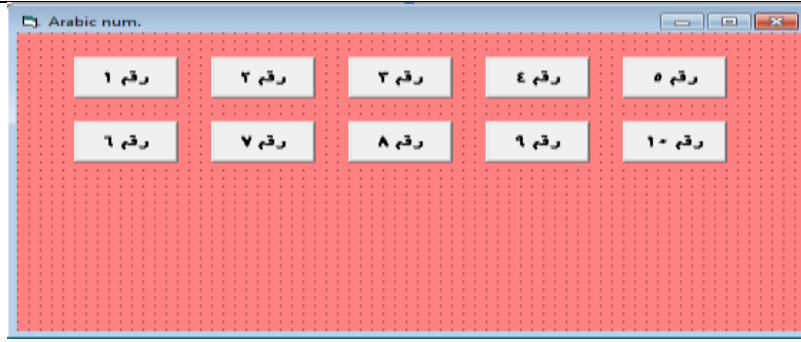
Figure (7): Arabic numbers interface

Conclusion

This paper presented a program for learning preschool children Arabic and English letters and numbers by playing sound file from using audio capabilities in visual basic and windows application programming interface (API) this program allows children using mouse or press from keyboard which Arabic and English letter or number they want to listen to its pronunciation for three times. as we now children have low recognize capability between capital and small letters this program deal with theses two cases this program done with visual basic 6 and VLC media player 2.0.5 and format factory 3.1.1.this program is used by group of children find that they learn faster than traditional learning because at these days children like very much new technology this point must be invest by taking the advantage of technology.

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الملخص:

في هذا البحث قمنا بتصميم برنامج تعليمي للاطفال يشبه اللعبة لعمر(3 – 5) سـنة عمر ماقبل المدرسة حيث يوفر البرنامج امكانيات صوتية لتعليم الاطفال الاحـرف والارقـام العربية والانكليزية عن طريق سماع نظق الحرف ثلاث مرات تسجيل صوت احد الاشـخاص بالاستفادة من تشغيل الملفات الصوتية من خلال لغة الفيجول بيسك 6 وهـذا البرنـامج بـوفر امكانيات برمجية عديدة تتيح للاطفال اما اختيار الحرف او الرقم باستخدام الماوس اوالضغط من لوحة المفاتيح كما نعلم ان الاطفال قليلي التميز بين الاحرف الكبيرة او الصغيرة الانكليزية لـذا يقوم بالتعامل مع الحالتين هذا البرنامج تم باستخدام لغة الفيجول بيسك 6 وبرنـامج format factory وبرنامج VLC,هذا البحث تمت مقارنته مع بحـث اخـر" play a sound file in visual basic 6" البحث الثاني تعامل فقط مع تعلم الاحرف والارقام الانكليزية بينما هذا البحث يعلم الاحرف والارقام العربية والانكليزية بالاضافة الى امكانيات صوتية اكثر .