

An Android Application for Kids Tracing: Fundamental Arabic Consonants

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Abstract. Tracing is a fundamental step of children learning. This research objective is to provide a learning method for giving a new channel to the children who needs to learn Arabic language as their second language and to see the satisfaction of used. This research had been developed on Android operating system which can be launch both of smart phones and tablets. This study was applied with three types of users are primary student those who study in the private Islamic primary school, teachers, and parents. All of target groups were whom had lived in the three southernmost provinces of Thailand including the province of Pattani, Yala, and Narathiwat. The result of this study shown the overall of this application was satisfied to all study groups.

Keywords: kids' application, Arabic tracing, educational application, satisfaction assessment.

INTRODUCTION

Children learn through play; Play is critical to the healthy growth and development of children. As children play, they learn to solve problems and practice language skills. Game learning using the application is an attractive concept to use in practicing children's skills. Currently, most children are allowed to play and learn by themselves via an application installed on smartphones and tablets. Play is one of the main ways in which children learn. It helps to build self-worth by giving a child a sense of her abilities and to feel good about themselves. Because it's fun, children often become very absorbed in what they are doing. In turn, this helps them practice the ability to concentrate. Nowadays, Mobile learning applications are also one alternative those parents choose for their children to learn from their playing. The survey polled American parents with a child ranging in age from newborn to eight years old, covering smartphones, tablets, and any other portable device with a screen with this result, it's showed that mobile devices have become part of children's lives and at the same time it also before the development process of the children, especially in the education learning (Yahaya & Abdul Salam, 2014). Because of that, Mobile Learning (M-Learning) come into modern's life and become the best way of learning mechanism that can improve children learning process by using mobile learning applications (Sarrab & Aldabbas, 2012).

Consonant or learning of the alphabet is consistently recognized as the strongest, most durable predictor of later literacy achievement. A recent project offers practical implications

for increased effectiveness of teaching alphabet knowledge to young children. Knowledge of the names, sounds, and symbols of the letters of the alphabet or alphabetic knowledge is essential for learning to read and write (Jones et al., 2013). The first step in learning the Arabic language is mastering the alphabet. This application will teach you how to write the basic form of the 28 letters of the Arabic alphabet. All Muslims must know Arabic because Al-Quran which is used to recite in Solah (Prayer) is written in Arabic words, with the importance of the Arabic language developers getting an idea to develop the application for learning the Arabic alphabet. This project proposes to develop an educational application, which is name Arabic Board. This application teaches children write Arabic alphabet in appropriate step. Arabic Board is Mobile Learning application which provides an educational game for children. The project provides Arabic alphabet handwriting game which is included with letter tracing on screen, alphabet song and tracing pattern. Developers would like to develop the game application to be more efficiency than traditional learning method and to support student learning in 21st century. This project aimed for children ages three to seven years old in learning alphabet writing and name of each letter. The Arabic Board is one alternative application that parent can choose for their children because this application is non-violence game. So, it's safe for children although they are playing without parent. This application also design as multimedia application educator can learn from audio and graphic on the screen.

Therefore, the traditional learning of alphabet handwriting has many drawbacks such as learning in specific location and availability of learning material. With the T-learning drawbacks make educator uninterested in learning (Sarrab & Aldabbas, 2012). Handwriting application has developed in many languages such as English, Mandarin, and Arabic etc. The Arabic handwriting applications still not efficiency and effectiveness. There is no tracing pattern that can check user drawing. So, these all are interest and motivate to develop this project.

LITERATURE REVIEW

Zeemish labs have developed learning of Arabic for beginner application. The application teaches the learner how to speak Arabic with lessons, courses audio, activities, and quizzes that including the alphabet, phase, vocabulary, pronunciation, part of speeches, grammar, and many more. Furthermore, this was containing of 20 classes of lectures, and learners can understand Arabic within 30 days (Zeemish Lab, 2015). Sommayah developer decided to develop a write with me Arabic application where this application offers to trace the Arabic letters in all forms: start, middle, and end of the word. It also offers to trace the Arabic number in the form of the word and a number also there is a nice feature that enables the parent to teach their child any word in any language (Soliman, 2016).

The Arabic Alphabet application offered audio pronunciation of each Arabic letter and video pronounced like from YouTube. The application runs both online and offline, but offline might miss some features. Quran Reading team has developed a fun learning alphabet game for little Muslims to learn to recognize and memorize the Arabic alphabet. Lil Muslim is an Islamic preschool learning app for Muslim kids to learn the Islamic and Arabic alphabet in a unique and fun way. Lil- Muslim is interactive to teach your child to learn Islamic (Lil Muslim, 2015). While Sanoma has developed the Letter School application. The application got an award-winning app recommended by parents and teachers. Children Play to learn how to write all letters of the alphabet ABC - XYZ and the numbers 1-10 with Letter School. Kids

practice essential skills as they play four exciting games per letter or number (Letter School, 2015).

Learning via traditional method and phonics method, the results pointed out that there was a statistically significant difference between the two methods of teaching kids. In other words, those subjects who received the phonics method had also better performance in reading and writing. On the other hand, based on the results obtained, most of the kids' learning difficulties were due to the method of teaching. The domain of reading and writing, the traditional method turned out to be problematic for young learners. It can be inferred that the phonics method is more effective than the traditional method because the performance of children in reading and writing who received the phonics method was better than the kids who received the traditional method. Also, based on the subjects' performances on final tests, the traditional method was more problematic than the phonics method because most of the students who received the phonics method had better performance and better grades on reading and writing on these final tests (Karimkhanlooei & Seifiniya, 2015).

Belajar Bersama Dino provides a mobile application that enables users to immerse themselves in a learning environment anywhere and anytime. On the top of that, it helps the user to understand the basic alphabet and spelling by following twenty-six different content that had been integrated into the application. Users can handle the application without any problem as the interfaces are easy to use and learn. As a result of users' evaluation, Belajar Bersama Dino can inspire and motivate users to learn the basic alphabet and spelling via mobile phone as long it has Android Operating System. For future work, more topics or content need to be added to the application so that it can be used by different ages of the user (Yahaya & Abdul Salam, 2014).

METHODOLOGY

Planning

This phase was taking as a finding the project problem statement, studying the previous work, and finding the suitable application that wants to develop and the target group of the study. Therefore, this study took a pattern of the Arabic phonetic alphabet as shown in Figure 1 and this also planned to develop with C# programming language.

ا	ب	ت	ث	ج	ح	خ
âlif	bâ	tâ	thâ	djim	há	rró
د	ذ	ر	ز	س	ش	ص
dâl	dhâl	râ	zái	sin	shin	sód
ض	ط	ظ	ع	غ	ف	ق
dód	tó	dá	áin	gháin	fâ	qóf
ك	ل	م	ن	ه	و	ى
kâ	lâm	mim	nun	hâ	uau	iâ

FIGURE 1. An Arabic phonetics alphabets

Analysis

Gathering the feedback from the previous education application on the play store, with the goal of determining how these feedbacks will be adapted to the application. The analysis and understanding the nature of the information and the functions of the application which are required for the application. Figure 2 represents the site structure of the proposed application that includes the Home, Learning, Write, Developer Information, and Application Information button.

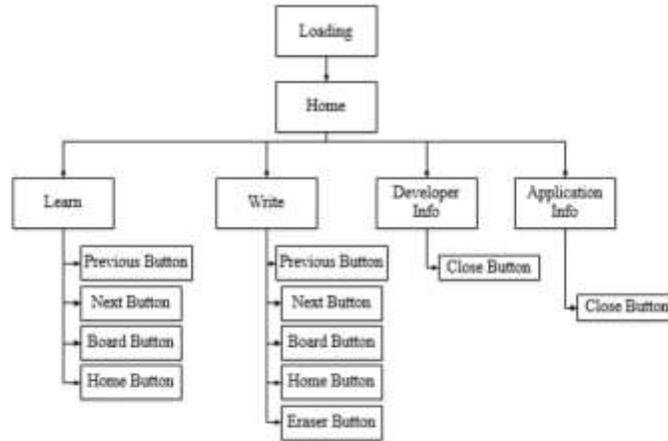


FIGURE 2. Application site structure

Storyboard is a graphic organizer in the form of illustrations or images displayed in sequence for the purpose of pre-visualizing a motion picture, animation, motion graphic or interactive media sequence as shown in the Figure 3.

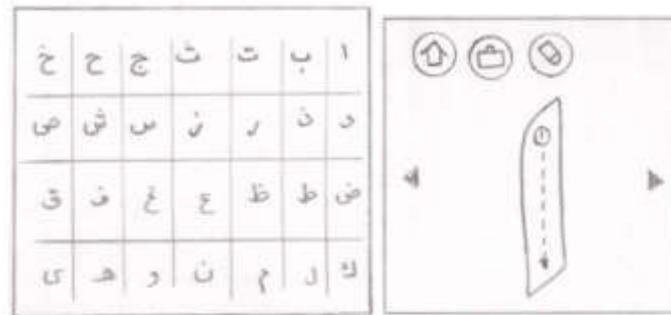


FIGURE 3. Application sketching design

Figure 3 represented the sketching of the application where they are consisting of the twenty-eight letters of Arabic alphabet with the designing of alphabet tracing of each letter user interface. Meanwhile the designing of the sketching the Arabic tracing application transposed to the ready application design as the first step as shown in the Figure 4 (a) the second step, determine the tracing point of each alphabet as shown in the Figure 4 (b), and the third step, design the flow of tracing point and save as PNG format as shown in the Figure 4 (c).

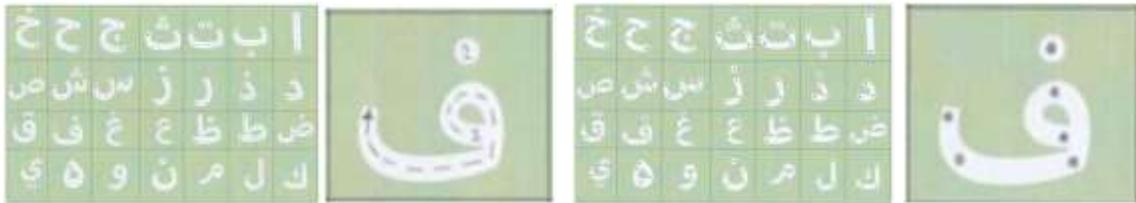


FIGURE 4. Draft of user interface (a)

FIGURE 4. User interface of tracing point (b)



FIGURE 4. Proposed user interface of tracing point (c)

Design

The developer designed the user interface of the Arabic tracing application of all twentyeight alphabets. This starts with the button of the application where consist of the Home, Board, Next, Previous, Eraser, Pencil, and Exit button. Next, application menu of the application is designed with the colorful of children eye attractive. While the vocabulary and picture of each Arabic alphabet would be included in this phase. All the designs represented in the Figure 5 (a), (b), and (c).



FIGURE 5. Menu of the application (a)

FIGURE 5. Interface of alphabet (b)



FIGURE 5. Vocabulary interface (c)

The Figure 5 (a) represented the menu of the proposed application where using a colorful design which can be interacted by the children. While the Figure 5 (b) shown the interface of the selected alphabet were consisted of vocabulary picture on left hand-side, Arabic alphabet and vocabulary that placed on the right hand-side, and the button of the application that located on the top-left-hand-side. The Figure 5 (c) represented the design the of basic Arabic vocabulary of each alphabet with audio sound.

Implementation, Testing, and Editing

The application is developed by using unity engine and coding by using C# programming language. There were also the edit the audio of the Arabic alphabet and vocabulary pronunciation. The finalized of this application as shown in the Figure 6.



FIGURE 6. Application interface

The Figure 6 shown the finalize application interface where represents the welcoming page, introduction page, home page, vocabulary page, tracing page, and result page. The welcoming page represents the application title and the loading button. While next coming page was showing the introduction page where both of vocabulary learning and tracing lesson that ease the children to select what they need to learn. Next, the home page shows the twenty-eight alphabets that available to the children select which alphabet they need to learn either

vocabulary or tracing lesson. Vocabulary page represents both of picture and vocabulary of the related alphabet. While the tracing shows the alphabet with the tracing point that available to the children start their tracing, and the last page represents the appreciation page after children done their lesson of each.

FINDING

This application had been implemented by 338 students and teachers in four schools of three southernmost border provinces of Thailand including Yala, Pattani, and Narathiwat. This target shown that female was a greater number of participant than male (60.9% and 39.1% respectively). The analysis of satisfaction of application used represented the average and standard deviation as following Table 1.

TABLE 1. Average and Standard deviations value of the application appreciation assessment.

Appreciation terms	Mean	S.D.	Level of agreement
Overall application	3.92	0.67	Agree
1) Easy to use, no complication	3.75	0.75	Agree
2) Position of information placement	3.81	0.71	Agree
3) Suite with the current technology	3.95	0.64	Agree
4) Easy to download from the Google Play	4.05	0.66	Agree
5) Easy to click	4.52	0.57	Totally agree
6) Design is suitable with the kids	4.44	0.60	Totally agree
7) Vocabulary is clear enough	3.31	0.78	Fairly agree
8) Tracing point is quite enough	3.30	0.79	Fairly agree
9) Clear instruction of using	3.50	0.64	Agree
10) Sound is clear enough	4.52	0.57	Totally agree
Overall application announcement	3.74	0.65	Agree
1) Information is clear	3.57	0.62	Agree
2) Activity or training or guiding is clear	4.05	0.68	Agree
3) Researcher is knowledgeable	3.59	0.64	Agree

Table 1 shown that the overall application was located at 3.92 in average, 0.67 of standard deviation with the “agree” as an agreement level. Furthermore, easy to click was the highest criteria of application used and followed by the design of this application is suitable with the children age (4.52 of mean and 0.66 of S.D.; 4.44 of mean and 0.60 of S.D. respectively). The announcement of application represented that application was 3.74 of average, 0.65 of standard deviation, and “agree” as an agreement level.

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