

LEARNING APPLICATION OF DAILY PRAYER FOR DEAF CHILDREN SD-LB YAYASAN REHABILITASI TUNA RUNGU WICARA



Compiled as a Condition to Complete Bachelor Degree Program at the Informatics Department
Faculty of Communication and Informatics

Submitted by:

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L 200 134 008

DEPARTMENT OF INFORMATICS
FACULTY OF COMMUNICATION AND INFORMATICS
UNIVERSITAS MUHAMMADIYAH SURAKARTA
2017

APPROVAL PAGE

**LEARNING APPLICATION OF DAILY PRAYER FOR DEAF CHILDREN
SD-LB YAYASAN REHABILITASI TUNA RUNGU WICARA**

SCIENTIFIC PUBLICATION

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Supervisor



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ENDORSEMENT PAGE

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BY

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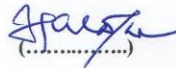
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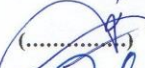
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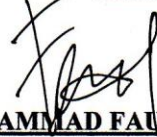
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LEARNING APPLICATION OF DAILY PRAYER FOR DEAF CHILDREN SD-LB YAYASAN REHABILITASI TUNA RUNGU WICARA

Abstrak

Sekolah Luar Biasa Yayasan Rehabilitasi Tuna Rungu Wicara (SLB YRTRW) merupakan sekolah untuk anak yang berkebutuhan khusus terutama tuna rungu wicara yang masih mengalami kendala dalam pembelajaran. Pembelajaran yang dilakukan masih membutuhkan waktu tambahan, sedangkan dengan adanya waktu belajar tambahan akan membuat siswa bosan dan tidak fokus. Ditinjau dari guru PAI (Pendidikan Agama Islam) hanya ada satu dan mengampu kelas 1 SD sampai kelas 3 SMA sehingga membuat jam belajar kurang intensif. Menurut guru PAI di SLB, orangtua wali siswa banyak yang tidak mampu memberi pelajaran tambahan di rumah. Penelitian ini bertujuan untuk membuat aplikasi belajar yang bisa membantu belajar do'a di luar jam belajar di sekolah dan mungkin bisa lebih efektif. Aplikasi ini akan beroperasi pada perangkat *smartphone Android* yang telah berkembang pesat dan tersebar luas di masyarakat era modern ini. Penelitian ini dilakukan berdasarkan kurikulum SLB YRTRW terutama kurikulum Sekolah Dasar secara keseluruhan. Berdasarkan hasil wawancara dan observasi yang didampingi oleh guru PAI, aplikasi ini mencakup kemampuan siswa tuna rungu dan mensimulasikan cara pengajaran guru PAI ke tingkat digital. Aplikasi ini akan dibuat menggunakan *software* utama *Construct 2*. Aplikasi ini mensimulasikan metode pengajaran yang ada dengan tambahan latihan - latihan menyusun ayat do'a secara urut dan aplikasi ini akan menambahkan fitur tambahan yaitu *Mini Game* yang bertujuan meredakan rasa bosan dengan metode pembelajaran yang

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Kata Kunci: Android, Aplikasi, Belajar, Construct 2, Do'a, Tuna Rungu.

Abstract

Sekolah Luar Biasa Yayasan Rehabilitasi Tuna Rungu Wicara (SLB YRTRW) is a school for children in need especially deaf mute that is still experiencing obstacles in learning. Learning session still need additional time, whereas with only one *PAI (Pendidikan Agama Islam)* teacher and teaching elementary 1st grade until 3rd grade high school so it makes it less intensive in the learning hours. According to *PAI* teacher in SLB, many of foster parent are not able to give extra lessons at home. This research goals to make learning application that can help learning benedictions after hours of learning in school and may be more effective. This application will be operate on *smartphone Android* device which has been growing rapidly and widespread in the society of this modern era. This research was conducted on SLB YRTRW basis curriculum elementary school as whole. Based on the result of interviews and observations accompanied by *PAI* teacher, this application includes deaf student ability and simulate teaching method from *PAI* teacher to digital level. This application will be created using *Construct 2* software. This application simulate an existing teaching methods with an extra exercises of composing benediction verse consecutively and this application will add additional features namely *Mini Game* that aims to relieve the boredom with basic a learning method do. Testing is done by way of delivering the application on foster parent and try the application at home. Based on the results of a questionnaire on the content by *PAI* teacher and some foster parent can be

concluded that the application is quite easy to understand and can be a medium of learning in their home.

Keywords: Android, Application, Benediction, Construct 2, Deaf Mute, Learning.

1. INTRODUCTION

Sign language is another way that deaf children use to communicate with others. Warrier (2016) says sign language is the way of communication by people suffering from hearing loss. As Soares (2015) says that, parameters like the movement and orientation of the hand and the articulations must be accurately determined in order to ensure correct gesture recognition. As mentioned Sign language is used for deaf people but normal people use an unusual way of communication. Because of that, deaf people hopefully can learn a little bit to communicate as they learn in SLB Yayasan Rehabilitasi Tuna Rungu Wicara.

According to Peterson (2013) in his book titled *Computer Games and Language Learning* says that language is a tool for social and individual problem solving and it is our most crucial human tool for taking action in the world and learning from experience. Thus we know that language is important to understand each other and now we know how hard deaf children learn to communicate. SLB Yayasan Rehabilitasi Tuna Rungu Wicara is the place to accommodate deaf children to learn but in the SLB has constraints, namely the lack of teachers because there are students from elementary to high school level and the children themselves have a lack of interest to learn in school because the class situation is not conducive based on author observation. With technology we can create application learning to facilitate them like Klopfer (2008) said that Using new technologies we can engage students in deep, meaningful, realistic, and relevant problems, the kinds of complex collaborative problems that education reformers have been clamoring for many years. Some of this can change through the use of desktop/laptop computers. Students now work with data analysis tool collaborative learning environments, simulations, multimedia authoring tools, and virtual environment, all which offer access to new content and new ways of learning. Bouzid (2015) children today grow up in an exciting and changing world where the web technology, Internet, mobile phones, video games and computers surround all aspects of their daily lives. Because of that we try to make another media through application on Android smartphone. By the graphics of the application we hope that can create their interest to keep learning while they are in home. According to Bigelow (2012) the Construct 2 display is easy to understand. Its features include Powerful Event System focusing on logic; Flexible Behaviors (physical properties, movement, platform, etc.), Instant Preview; Stunning Visual Effects; Multiplatform Export applied in games that can be published to a variety of platforms, namely, Chrome Web Store, Facebook, Kongregate, Newgrounds, Firefox Marketplace, Arcade Sencha while to get the same performance as the previous, PC, Linux, Mac are as good as mobile platforms such as iOS,

Android, Blackberry. Construct 2 will be able to support this application to provide mobile platform Android.

Wherefore as a Muslim we suppose to worship and pray, this application will facilitate them to memorize and practice in other hour after school. Base on curriculum in SLB Yayasan Rehabilitasi Tuna Rungu Wicara which is understand the factual knowledge by the way of listening, seeing, reading and ask about him, God's creatures and activities, and objects that they had met in an environment of family, school, and community. Factual knowledge through practice in a clear and logical language, gesture, and actions that reflect the child's behavior is healthy, faithful and noble character.

As we gather some of information by interviewing PAI teacher in SLB and observing we can conclude that deaf child there are prefer to chat with his or her friend because they have same situation and prefer using sign language that actual language, they find reading is boring although almost all lecture using read and write to make easier to communicate, they also need more time to learn that other children whereas more time they spend to learning they become indolent. With this application we will train using pronunciation same method as teacher in SLB Yayasan Rehabilitasi Tuna Rungu Wicara which is using sign language and using mimic mouth to teach them to speak. The reason why they teach them to speak because in the outside they community they cannot using sign language any longer.

2.METHOD

The author used 2 methods in the proposed research. The first method is interviewing teachers in the SLB Yayasan Rehabilitasi Tuna Rungu Wicara knowing the problems they had. The second method is observing deaf children when they learning in the class. The result of interview and observation with *PAI* teacher in SLB YRTRW as follows:

- a. Mentoring and supervision required by students for understanding learning material.
- b. Deaf students generally lack focus and feel tired quickly on presentation material session.
- c. Curriculum learning deaf children in accordance with the competency from Diknas.
- d. Each class with 2-10 students take one teacher supervisor.
- e. One learning method applied to SLB YRTRW is extra hour class especially for *PAI* session.
- f. The teacher hope that the application can attract their attention to learn in after school hour.

2.1 Time and Place

The project begin in 3 April 2017, the project supposed to be ready in August 2017, the place for the interview and observation is SLB Yayasan Rehabilitasi Tuna Rungu Wicara.

2.2 System Design

2.2.1 General Overview

General overview from the application as follows:

- This application will be called “Belajar Do’a Sehari – Hari edisi tunarungu” for deaf children SD-LB.
- Construct 2 is the engine that we use to make this application.
- This application will be in Indonesian language.
- The application will have 3 section which is learning, testing knowledge, and minigame.
- Learning section will be spelling, reading, and mimicking section which means that children have to memorizing the benedictions.
- Testing knowledge section will test the knowledge of the children what they learn in the learning section by drag and drop arrange the benediction.
- Minigame section is extra section where the children have to play platform game that collecting some word that will use as a “key” to go next level.

2.2.2 Storyboard

Storyboard is a series of vignettes to illustrate visually the sequence or flow from the system to be built. This storyboard from this application will show by figure 1.

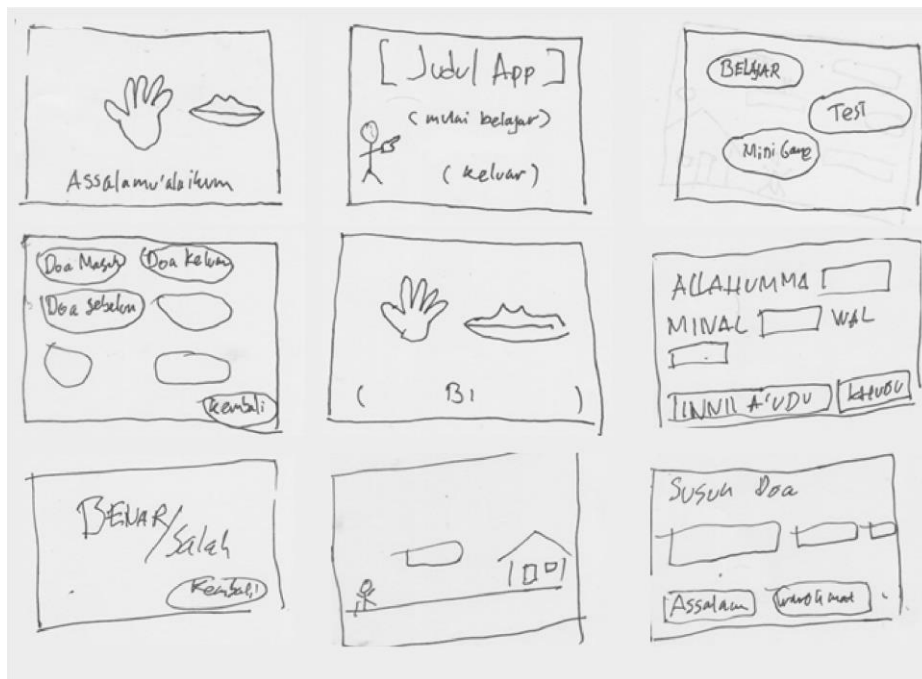


Figure 1. Storyboard

First layout it is just Islam ethic to familiarize the user to always say's salaam when meet someone. Simply common main menu and there is one character that will explain everything in every menu to make it easy for children to understand. Layout 3 have 3 button that lean to *belajar* menu, *latihan*

menu, minigame menu and back menu. *Belajar* section where benediction learning happened with slow benediction spelling. Testing after practice in the *Belajar* section, drag and drop make it easier to do. This game purpose to make the user do not get bored, this game can be for little entertainment and also learning a little bit.

3. RESULT AND DISCUSSION

The result of this research are the Belajar Do'a Sehari – Hari application that the main objective is to help elementary student on SLB YRTRW to learn every day benediction in their home. The following discussion is research results of the Belajar Do'a Sehari – Hari application for deaf elementary student at SLB YRTRW.



Figure 2. First layout will be salam



Figure 3. Main menu



Figure 4. Credit layout

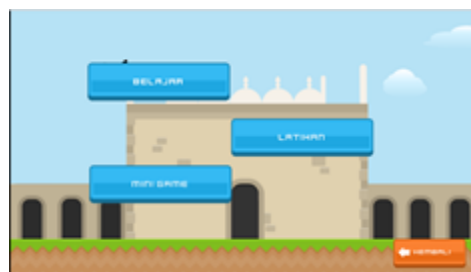


Figure 5. Mulai belajar menu



Figure 6. Belajar and latihan menu



Figure 7. Belajar section



Figure 8. Latihan section



Figure 9. Latihan section



Figure 10. *Latihan* section

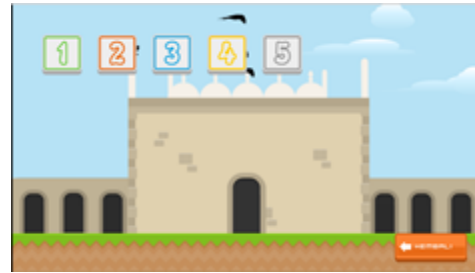


Figure 11. Mini game level menu



Figure 12. Mini game

3.1 First Layout

As we see in figure 2, first layout will be display first when the application open will be salam. With no button just animation until the end.

3.2 Main Menu

As we see in figure 3, main menu will have 3 buttons, “*Masuk Menu*” button will lead to “*Mulai Belajar Menu*”, “*Kredit*” button will lead to “*Credit Layout*”, “*Keluar*” button will close the application.

3.3 *Kredit* Layout

As we see in figure 4, credit Layout will display the credit. Have 1 “X” button to close the credit.

3.4 *Mulai Belajar* Menu

As we see in figure 5, *mulai belajar* menu have 3 button, “*Belajar*” button will lead to “*Belajar Menu*”, “*Latihan*” button will lead to “*Latihan Menu*”, “*Mini Game*” button will lead to “*Mini Game Level Menu*”. Other button “*Kembali*” to go back to earlier layout.

3.5 *Belajar* and *Latihan* Menu

As we see in figure 6, *belajar* and *latihan* menu have 10 button that each button lead to benediction as the button says. Other button “*Kembali*” to go back to earlier layout. Other button “*Kembali*” to go back to earlier layout.

3.6 Belajar Section

As we see in figure 7, *belajar* section will have animations that display each benediction that selected. Animation will run at 1 frame per second. Have 2 button, “*Ulangi*” button to reset the layout, “*Kembali*” button to back to *belajar* menu.

3.7 Latihan Section

As we see in figure 8, *latihan* section where user supposed to sorting the benediction in the right order. Every start of this layout will randomized the verses. This layout have 2 button, “*Ulangi*” button that reset the layout and randomize the verses. “*Kunci Jawaban*” button is to lock the answer. Other button “*Keluar*” to go back to earlier layout.

3.8 Benar Layout

As we see in figure 9, if the answer from *latihan* section right then this layout will appear. Have 2 text that can be touched, “*Do’a selanjutnya*” button to go to next benediction, “*Keluar*” to go back to *latihan* menu.

3.9 Salah Layout

As we see in figure 10, if the answer from *latihan* section wrong then this layout will appear. Have 2 text that can be touched, “*Coba Lagi*” button to go to earlier layout, “*Keluar*” to go back to *latihan* menu.

3.10 Mini Game Level Menu

As we see in figure 11, mini game level menu will have 5 button that actually just have 4 level because this is still demo for mini game. Each button represent different level as written in each button. Other button “*Kembali*” to go back to earlier layout.

3.11 Mini Game

As we see in figure 12, mini Game is platformer puzzle game. Each level have different difficulty puzzle, different benediction verse to collect, and different background level.

Based on the learning curriculum used in *SLB YRTRW*, the benediction has been simplify to make it memorable that elementary student can memorize and use it in every day. With this application hopefully they have sort of interest in learning everyday benediction.

4. TESTING

This research was conducted in *SLB YRTRW* especially for the elementary students with *PAI* teacher and some foster parent of the student.

4.1 Testing Application on the Smartphone Android

This application will be supporting 16-23 Android API-levels is equivalent to 4.1-7.1.1 Android version. After extract the game to android the author test on several Android smartphones by himself.



Figure 13. One of the smartphone testing the application

Table 1. The results of smartphone test.

Smartphone	Code Name Android	Android API	Smartphone Condition	Application Run
Asus Zenfone 2	Marshmallow	6.0	Good	Excellent
Asus Zenfone 4	KitKat	4.4	Bad	Bad
Hp 7 Voicetab	KitKat	4.4	Good	Bad
Mito A210	Jelly Bean	4.3	Good	Good
Samsung Galaxy Core 2	KitKat	4.4	Bad	Very Bad
Vivo Y21	Lollipop	5.1	Excellent	Good
Xiaomi 2 prime	Lollipop	5.1	Excellent	Excellent
Xiaomi 4	Marshmallow	6.0	Excellent	Excellent
Xiaomi 4 X	Marshmallow	6.0	Good	Excellent

This test hopefully can be a reference to know the condition of the smartphone should be used for this application. The result was unexpected because some newer version of android does not mean that the application will run smoothly for example is the Mito A210 and the Hp 7 Voicetab.

4.2 Testing the Application

Beizer (1995) in Al Irsyadi (2017), testing the application of the research using black-box method to see if the application is running properly in accordance desired or not. Table 2 shows the results of testing the application with the method of black box on main menu, credit layout, *mulai belajar* menu, *belajar* and *latihan* menu, *belajar* section, *latihan* section, mini game level menu, and mini game.

Table 2. Black-box test results on main menu, credit layout, *mulai belajar* menu, *belajar* and *latihan* menu, *belajar* section, *latihan* section, mini game level menu, and mini game.

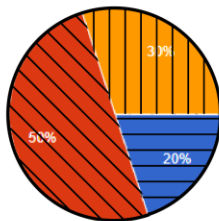
No.	Tested	Input	Output	Status
1.	Mulai belajar menu button	Touch mulai belajar menu button	Go to mulai belajar menu	True
2.	Kredit button	Touch credit button	Displaying credit	True
3.	Keluar button	Touch quit button	Close the application	True
4.	Belajar button	Touch belajar button	Go to belajar menu	True
5.	Latihan button	Touch latihan button	Go to latihan menu	True
6.	Mini game button	Touch mini game button	Go to mini game level menu	True
7.	Benediction buttons	Touch one of the benediction	Go to benediction as you choose it	True
8.	Kembali button	Touch kembali button	Go to earlier layout	True
9.	Ulangi button	Touch ulangi button	Restart layout	True
10.	Keluar button	Touch keluar button	Show the option	True
11.	Keluar text	Touch keluar text	Go to latihan menu layout	True
12.	Coba lagi text	Touch coba lagi text	Go to earlier layout	True
13.	Do'a selanjutnya text	Touch do'a selanjutnya text	Go to next benediction	True
14.	Level buttons	Touch one of the level	Go to level as you choose it	True
15.	Pad controller right button	Touch pad controller right button	Move the character to right	True
16.	Pad controller left button	Touch pad controller left button	Move the character to left	True
17.	Pad controller circle button	Touch pad controller circle button	Simulate jumping	True
		Double tap on pad controller circle button	Simulate double jumping	
18.	X button	Touch X button	Show the option	True
19.	Loop button	Touch loop button	Restart layout	True
20.	Drag-and-Drop object	Touch and drag the object	Follow direction the object dragged	True

4.3 Validity and Reliability Test

This validity and reliability use to measure the reliable and valid this application is using questionnaire. Figure 17 and table 3 is the result of answer from PAI teacher and foster parent of student. Questionnaire created by Google Form and some of foster parent of the student did not answer the form.

Apakah tampilan aplikasi berikut menarik?

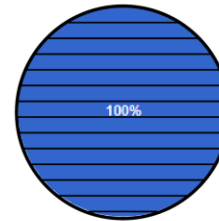
10 responses



- Sangat menarik
- Menarik
- Biasa saja
- Tidak menarik
- Buruk

Apakah sesi latihan aplikasi tersebut efektif?

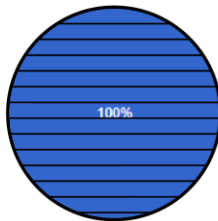
10 responses



- Ya
- Tidak

Apakah menu di aplikasi tersebut mudah di pahami?

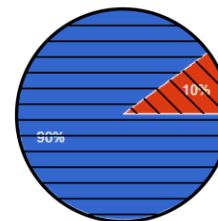
10 responses



- Ya
- Tidak

Apakah sesi mini game aplikasi tersebut menarik?

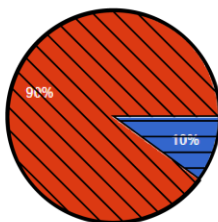
10 responses



- Ya
- Biasa saja
- Tidak

Apakah sesi belajar di aplikasi tersebut terlalu cepat?

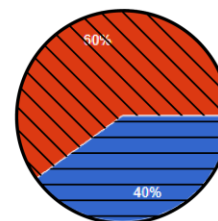
10 responses



- Ya
- Sudah pas
- Terlalu lambat

Bagaimana kontrol mini game di aplikasi tersebut?

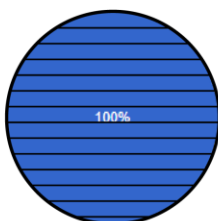
10 responses



- Baik
- Biasa saja
- Buruk

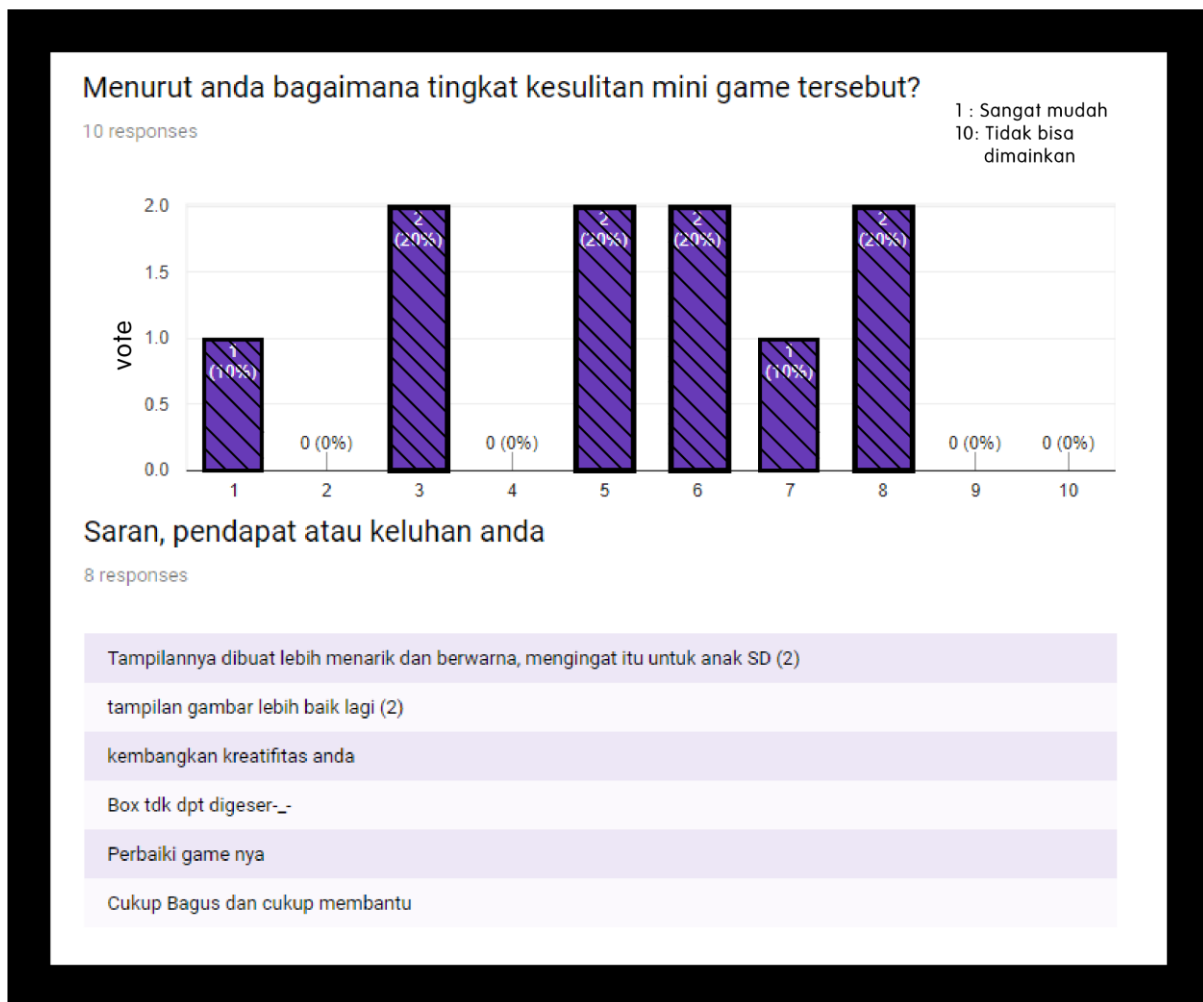
Apakah sesi belajar di aplikasi tersebut membantu?

10 responses



- Ya
- Tidak

(a)



(b)

Figure 14. (a) and (b) is the result of questionnaire

Table 3. Question for personal opinion about the application

Pendapat pribadi anda tentang aplikasi tersebut?
Sudah bagus dan cukup membantu
Aplikasi belajar dia sangat membantu bagi orang yang ingin belajar doa dan sangat mudah untuk pemula
Sangat membantu bagi anak untuk belajar doa
Bbrp hrs ada yang di perbaiki, overall good:)
Sudah bagus dan cukup membantu
Saya belum sempat memainkan
Bagus dan bisa membantu dalam menghafal doa doa
Sangat membantu dalam melatih pola pikir
Sangat membantu dalam melatih pola pikir

Description :

1. Does application overview interesting
2. Is the application easy to understand menu
3. Does the study session in the application too fast
4. Does the study session in the application's help
5. Does the exercise session in the application effective
6. Does the mini game session in the application interesting
7. How the controller in the mini game works
8. How difficult the level in the mini game
9. Advice, opinions or complaints
10. Opinion on the application

The result obtained are as follows:

- a) Question 1 (Does application overview interesting): 20% respondents said "Sangat menarik", 50% respondents said "Menarik", 30% respondents said "Biasa saja", 0% respondents said "Tidak menarik", 0% respondents said "Buruk", that means this application interesting enough.
- b) Question 2 (Is the application easy to understand menu): 100% respondents said "Ya", 0% respondents said "Tidak", that mean this application easy to understand.
- c) Question 3 (Does the study session in the application too fast): 10% respondents said "Ya", 90% respondents said "Sudah pas", 0% respondents said "Terlalu lambat", that means the study session run just ok.
- d) Question 4 (Does the study session in the application's help): 100% respondents said "Ya", 0% respondents said "Tidak", that means the study session does help.
- e) Question 5 (Does the exercise session in the application effective): 100% respondents said "Ya", 0% respondents said "Tidak", that mean the exercise session does effective.
- f) Question 6 (Does the mini game session in the application interesting): 90% respondents said "Ya", 10% respondents said "Biasa saja", 0% respondents said "Tidak", that means the mini game session interesting.
- g) Question 7 (How the controller in the mini game works): 40% respondents said "Baik", 60% respondents said "Biasa saja", 0% respondents said "Buruk", that means the mini game controller works ok.
- h) Question 8 (How difficult the level in the mini game): 10% respondents 1/10 rate, 0% respondents 2/10 rate, 20% respondents 3/10 rate, 0% respondents 4/10 rate, 20% respondents 5/10 rate, 20% respondents 6/10 rate, 10% respondents 7/10 rate, 20% respondents 8/10 rate, 0% respondents 9/10 rate, 0% respondents 10/10 rate, that means the mini game is a little bit too difficult.
- i) Question 9 (Advice, opinions or complaints): overall, they want improvement in the color and the graphic, more creativity, and the game little bit buggy.
- j) Question 10 (Opinion on the application): overall good comments.

5. CONCLUSION

Conclusion that we get from this research is:

- 1) Application Belajar Do'a Sehari – Hari will help and improve deaf children.
- 2) Application Belajar Do'a Sehari – Hari will help deaf children to learn by them self out of school hour.
- 3) Application Belajar Do'a Sehari – Hari will increase interest in learning every day benediction.

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