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**MENGEMBANGKAN KETERAMPILAN MOTORIK
DASAR UNTUK ANAK DENGAN AUTISME RINGAN
MENGUNAKAN APLIKASI GAME MOBILE**

SKRIPSI

MUHAMMAD FARREL MUTTAQIEN 1807432002

**POLITEKNIK
NEGERI
JAKARTA**

PROGRAM STUDI TEKNIK MULTIMEDIA DIGITAL

JURUSAN TEKNIK INFORMATIKA DAN

KOMPUTER

POLITEKNIK NEGERI JAKARTA

2022



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Memperoleh Diploma Empat Politeknik**

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MOBILE GAME APPLICATION FOR MILD AUTISM CHILDREN IN DEVELOPING BASIC MOTOR SKILL

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ABSTRACT

A game is an activity where the player will be required to make a choice to perform an existing task. The mobile learning module can help improve the soft motor skills of autistic children who play it. This application is based on the needs of the community. Collecting data using interviews and questionnaires. Teachers from schools for autistic children and parents who have children with autism are the targets of a sample of questionnaires and interviews that will be given in order to get results according to needs. The software used is Adobe Photoshop CC 2017, Adobe Illustrator CC 2017, and Construct 3 as the builder of the application. From the application usability test, data is obtained that the required application is in accordance with what the user needs, from an attractive design, and the learning received.

Keywords: Mobile, Game, Autism, Learning.

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ABSTRAK

Permainan ialah satu aktiviti di mana pemain akan dikehendaki membuat pilihan untuk melaksanakan tugas sedia ada. Modul pembelajaran mudah alih boleh membantu meningkatkan kemahiran motor lembut kanak-kanak autisme yang memainkannya. Aplikasi ini adalah berdasarkan keperluan masyarakat. Mengumpul data menggunakan temu bual dan soal selidik. Guru-guru dari sekolah untuk kanak-kanak autisme dan ibu bapa yang mempunyai anak autisme menjadi sasaran sampel soal selidik dan temu bual yang akan diberikan bagi mendapatkan keputusan mengikut keperluan. Perisian yang digunakan ialah Adobe Photoshop CC 2017, Adobe Illustrator CC 2017, dan Construct 3 sebagai pembina aplikasi. Daripada ujian kebolegunaan aplikasi, data diperoleh bahawa aplikasi yang diperlukan adalah sesuai dengan apa yang diperlukan pengguna, daripada reka bentuk yang menarik, dan pembelajaran yang diterima.

Keywords: Mobile, Game, Autism, Learning.

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The researcher realizes that this final project is still not perfect due to limited ability and experience. Therefore, the researcher expects constructive criticism and suggestions for the improvement of this final project. Finally, we return all our affairs to Allah SWT, and the author hopes that this research can be useful for all parties.



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CHAPTER I

INTRODUCTION

1.1 Project Background

The word 'autism' is a combination of two Greek words — 'aut', which means 'self', and 'ism', which implies 'orientation or state'. So, autism can be defined as a condition of a person who extraordinarily preoccupied with himself (Reber, 1985). Children with autism need special treatment that everyone should be aware of. There are still many people who treat them with inattention, even though it is clear that autistic children have different habits from people in general. All of that because there are still many people who don't really understand how to treat autistic children well, so that it makes the child depressed and sometimes very emotional. Providing good treatment not only in daily life but also when autistic children are doing learning activities.

There are five types of autistic children in understanding something, namely Rote Learner, Gestalt Learner, Visual Learner, Hands-on Learner, and Auditory Learner. Each type is unique and does not understand something, so the explanation they receive must be by their type of understanding. For example, Auditory Learners are those who understand sound explanations more than visuals, so the learning that will be given to them is in the form of sound.

Currently, there are still a few learning methods for autistic children, and usually, the methods applied are conventional. To prove the feasibility of the technology becoming a learning method, there is a study that compares therapy

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for autistic children using conventional methods with combination methods with computers to improve visual motor skills in autistic children. In that study, children in the group of children who did conventional or combination therapy had a significant improvement where a clear improvement was seen in the results of the study.

The motor skills of autistic children are slower than other normal children. According to Rachmawati (2012), symptoms experienced by autistic children include impaired interaction, barriers to verbal and nonverbal communication (body language and sign language), and strange or very limited activities and interests.

This study aims to provide an interesting and efficient new learning method to improve soft motoric skill for autistic children, using Mobile Game Application.

Game is an activity that involves a player's decision, trying to achieve a goal that is limited by a certain context (for example, limited by rules) (Clark C., 1987).

1.2 Problem Statement

In some cases that can be found related to learning methods for children with autism, the use of conventional learning methods is effective but less efficient, especially when the teacher cannot meet with students directly. Also, the applications available for children with autism that can be found are still



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few, one of them is the mobile application Autispark: Kids Autism Games. Parents also cannot randomly assign teachers to teach their children. It can make the child have an unpleasant experience.

In that case, the researcher found at least 3 problems related to the current situation, namely:

1. There are still a few people who cannot understand the behavior of autistic children based on their habits.
2. Lack of variety of learning methods for autistic children.
3. There is still little use of interactive learning module for autistic children's learning methods.

1.3 Objectives of the Project

A research study designed to help improve the learning process for autistic children has specific objectives, namely:

1. To understand the habits and routines of autistic children that most people don't know about.
2. Determine efficient new learning methods for autistic children because most of the methods are still conventional.
3. Propose learning methods using Mobile Game Application for learning methods given to autistic children to provide a pleasant learning experience..

1.4 Scope of the Project



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Children with autism regression, on the other hand, had grown normally, they were responsive and had time to talk, but between the ages of 12-24 months they stopped growing, then there was a regression in the areas of communication and social interaction, eye contact disappeared as well as decreased speech and then disappeared (Budiman, 2002). Therefore the researchers set up a study with subjects aged 3-7 years to help respond to this problem quickly.

This study is limited to autistic children who have the type of auditory learner and visual learner in the Malaysia region where the responses of experts (such as teachers or parents) will be studied as a limitation of the study, and also the responses of 50 will be studied during the questionnaires session.

1.5 Significance of the Project

Very little research is related to the good learning process for children with autism. Previously, improving the learning process of mild autistic children was rarely discussed. This research helps increase knowledge about the learning process for children with autism.

1.6 Assumptions and Limitations

In conducting this research, several assumptions were made, namely:

1. Increase public awareness to treat autistic children with more attention.
2. Finding efficient learning methods for children with autism.



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1.7 Limitation

Researchers have never studied the behavior of children with autism disorders, therefore there may be limited knowledge about the behavior of children with autism disorders.

Researchers come from different countries so there are differences in culture which allows research results to depend on the sample area being studied. Researchers will conduct an understanding of the culture of the sample studied first to adjust the desired results.





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CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Children with autism disorders should receive more attention. They are a little different from most young children in general, therefore they cannot always be treated the same as other small children. It can be said that autistic children are children who are busy with themselves.

Unfortunately, for now, the learning methods given to children with autism are still limited and most of the existing methods are conventional methods. Conventional learning methods do help and cannot be replaced, but in this digital era, the use of technology is very helpful for all human problems, as well as for teaching and learning.

This study aims to find new learning methods for autistic children, which are easy and fun using existing technology, namely mobile games. By playing games and completing tasks, autistic children can improve their motor skills in a fun but educational way.

This study uses a mixed methodology to get a new learning method using mobile games. In this study, the instruments used were interviews and questionnaires in order to obtain more complete data to support the research.

5.2 Conclusion

After looking at the results of the questionnaire, it can be concluded that:

1. The design of the application including the colors and music used is suitable for use by small children.
2. The instructions in the game are still lacking, however already easy to understand.
3. The application is running according to what is desired.
4. The app is already fun to play.
5. The application can help the learning process of children with autism disorders.

5.3 Recommendations

Based on the results of the questionnaire and year-end assignment, there are several things that can be added to make the application more effective. The first one is to give additional instructions on the game that will be played by autistic children, like a brief animation of how to play the game. Second, add games that make autistic children move their soft motor skills, for example a drawing game. And the last one is to provide animated characters to attract more attention from autistic children.



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APENDIX

QUESTION IN GOOGLE FORM

1. Questionnaire1

EXPLORING PLACEMENT OF DESIGN FOR YOUNG AUTISM

Hello, my name is Muhammad Farrel Muttaqien. I'm currently studying major Bachelor in Creative Multimedia at Management & Science University. This form was made for helping me to do my research for my Final Year Project. My project is about making a game to improve motoric for autistic children. All personal data that you input here will be kept private and will only be used for research purposes. Thank you for your willingness to help with my research.

1. Name?
2. Age?
 - 17-20
 - 21-25
 - 26-30
 - 31-35
 - 36+
3. Gender?
 - Male
 - Female
4. Occupation?
 - House wife
 - Doctor
 - Teacher
 - Freelancer
 - Student
 - Others
5. Marital status?
 - Single
 - Married
 - Divorce
 - Widowed
6. Do you have a kids?
 - Yes
 - No

RO 1 : To understand the habits and routines of autistic children.

7. Do you have friends/children who have autistic syndrome?
 - Yes
 - No
8. Have you ever interacted directly with a child with autistic children?
 - Yes
 - No



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9. Have you ever done an activity with a child who has autistic syndrome?
 - Yes
 - No
10. Do you think interacting with autistic children is easy?
 - Yes
 - No
11. Do you know the routine and behavior of autistic children?
 - Yes
 - No
12. Does everyone have to understand autistic children's behavior?
 - Yes
 - No

RO 2 : To explore the barriers to effective learning when using interactive multimedia. To determine an effective design used to provide learning methods to autistic children

13. Do you agree to provide conventional learning to autistic children?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
14. Do you agree to add new learning methods for autistic children?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
15. How about giving children with autism a learning method using mobile learning application?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
16. Do you agree to change the learning methods for autistic children with technology?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
17. Do you think that the learning method using mobile learning application can replace conventional learning methods?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree



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RO 3 : Propose learning methods using interactive videos for learning methods given to autistic children.

18. Have you ever used or viewed mobile learning application?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
19. Have you ever seen the use of technology for learning methods to replace conventional learning methods?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
20. Have you ever used mobile learning application as a learning method?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
21. Have you ever viewed mobile learning application as a learning method for children?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
22. Have you ever viewed mobile learning application as a learning method for autistic children?
 - Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree

2. Questionnaire2

Feedback

Feedback form from people who have played Edutism.

Edutism is a learning game aimed at children with autism, the games used are games that have been used in books and are now being digitized into a game application which is now called Edutism.

If you have never tried the game, please install and play it first and then return to give me feedback, thank you.



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Here's the link:

https://drive.google.com/drive/folders/1QEMkXNgHPAgJVtRnCS_f1Gfjx6PapGf0?usp=sharing

1. Your Name?
2. Your age?
 - 17-20
 - 21-25
 - 26-30
 - 31-35
 - 36+
3. Do you think the game design used can be given to children aged 3-7 years?
Strongly disagree
 - 1
 - 2
 - 3
 - 4
 - 5Strongly agree
4. Do the colors used already look fun??
Strongly disagree
 - 1
 - 2
 - 3
 - 4
 - 5Strongly agree
5. Does the sound used (music & sound effects) suitable for children?
Strongly disagree
 - 1
 - 2
 - 3
 - 4
 - 5Strongly agree
6. Is this learning mobile game easy to understand?
Strongly disagree
 - 1
 - 2
 - 3
 - 4
 - 5Strongly agree
7. Is the instruction feature of the game easy to understand?
Strongly disagree
 - 1
 - 2
 - 3
 - 4
 - 5





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- Strongly agree
8. Do you need additional instructions on how to use the app?
Stongly disagree
- 1
 - 2
 - 3
 - 4
 - 5
- Strongly agree
9. Do you need additional instructions on how to play the games?
Stongly disagree
- 1
 - 2
 - 3
 - 4
 - 5
- Strongly agree
10. Do you think this application is running properly?
Stongly disagree
- 1
 - 2
 - 3
 - 4
 - 5
- Strongly agree
11. Do you think the games are fun?
Stongly disagree
- 1
 - 2
 - 3
 - 4
 - 5
- Strongly agree
12. Do you think this game helpful?
Stongly disagree
- 1
 - 2
 - 3
 - 4
 - 5
- Strongly agree

