IMPLEMENTATION OF MULTIPLE INTELLIGENCES METHOD USING ANDROID DEVICES (CASE STUDY EAGLE INTERNATIONAL SCHOOL)

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ABSTRACT

Multiple Intelligences or MI is a theory which indicates that human intelligences are not only one, even until this research, Howard Gardner as the originator of ideas proposed that human has 8 intelligences, Eagle School that located in Indonesia is one of the school that implements Gardner's theory in study process, in fact there are a few problems that occur such a report data from observations in the form of checklists cannot provide comprehensive results because the person who gave the assessment was only limited to the teacher, other than that another factor that is a problem is that the report's data paper is often lost, these problems make it difficult for the school to maximize the application of the MI method at the school. By using the latest technology, an android application has been created to overcome this problem, now parents could provide intelligence assessments for their children the goal is to make results more comprehensive than before, besides using this application the assessment process will be faster , while avoiding loss of assessment data. The results of applying this application were also quite good, it was evident from the results of the testing carried out to the school, they mentioned that with this application can improve the process of applying the MI method in the Eagle school.

Keywords: Multiple Intelligences, Intelligence Assessment, Technologhy in Education World, Teaching Strategy with MI, MI in Education World

1. INTRODUCTION

An application of technology in the world of education has an important role [1] [2], conventional learning is believed to be a less effective method of doing education [1], EAGLE school is one of the schools that in the learning process is a little like school in general. Eagle School is a place for private international education that opens classes ranging from kindergarten to high school, schools located in Lembang have something different from schools in general, namely in terms of the methods carried out, for example they often allow their students to study alone where the role of a teacher is as a facilitator, besides one of the missions from Eagle School is "Encouraging children to maximize their potential" where each child is directed according to the talents he has.

Departing from an interview that has been conducted by the author to the representative of EAGLE SCHOOL, he explained that the role of a technology, especially SmartPhone technology would be very helpful in the school, especially to improve the quality of learning, the school explained some of the problems that occur in the school and hope can be overcome by help later android application. The problem is that at this time the school has implemented a MULTIPLE INTELLIGENCES method [3], where the method is expected to allow the teacher to know the talent or intelligence that is available to the child, but in reality the method does not work optimally due to limitations in assessing each student, MI (multiple intelligences) evaluates based on the characteristics that arise from the child, for that needs extra attention so that all the traits and habits of the child can be monitored and can be used as input for the MI method. One of the methods used to provide an assessment is using checklist paper that contains indicators of each intelligence, but the paper is often lost and in the end the student's assessment data cannot be known. The purpose of this study is how to make the multiple intelligences method more fully implemented so that the learning process in Eagle school can be even better.

2. SUPPORTING THEORY

2.2 Multiple Intelligences

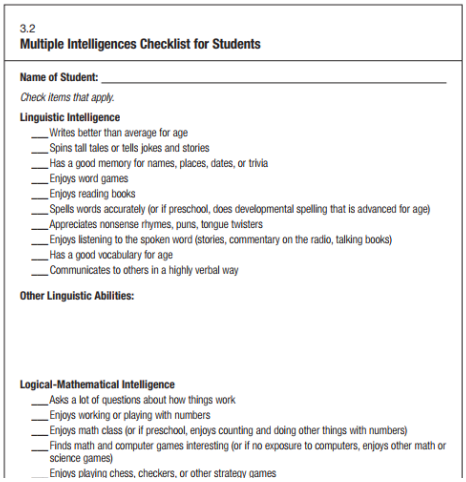
Howard Gardner is a figure in the world of psychology who is famous for his views or theories of intelligence expressed in his book entitled "Frames of mind: The Theory of Multiple Intelligences", according to Howard Gardner, one's intelligence includes elements of Logical-Mathematical, Musical intelligence. , Naturalist, Spatial, Intra-Personal, Linguistic, Bodily-Kinesthetic, and Inter-Personal [5].

2.3 Assess Student's Intelligence

Thomas Armstrong, Ph.D., mentioned in his book entitled "Multiple Intelligence in the classroom" that there is no such thing as a test that can be done in 15 minutes that can explain children's intelligence, everything is about observing students' attitudes in various ways [4], even so in the book Thomas Armstrong also explains several ways that can be used as multiple intelligance assessments in which the author will apply it in eagle school schools, here are some ways proposed by Thomas Armstrong in his book regarding the MI assessment methods that the author will apply:

1. Checklist

To help teachers in organizing research or observations of students, Thomas Armstrong suggested the checklist method, to help determine and see the development of intelligence from these students, because this checklist method is to help assess and see where the student's intelligence is, then how to draw conclusions from this method is by looking at which results of the checklist are more, the following is a Picture 1 of the Checklist in the Thomas Armstrong book and is also used by the current Eagle school:



3.2

Multiple Intelligences Checklist for Students

Name of Student: _____

Check items that apply.

Linguistic Intelligence

___Writes better than average for age
___Spins tall tales or tells jokes and stories
___Has a good memory for names, places, dates, or trivia
___Enjoys word games
___Enjoys reading books
___Spells words accurately (or if preschool, does developmental spelling that is advanced for age)
___Appreciates nonsense rhymes, puns, tongue twisters
___Enjoys listening to the spoken word (stories, commentary on the radio, talking books)
___Has a good vocabulary for age
___Communicates to others in a highly verbal way

Other Linguistic Abilities:

Logical-Mathematical Intelligence

___Asks a lot of questions about how things work
___Enjoys working or playing with numbers
___Enjoys math class (or if preschool, enjoys counting and doing other things with numbers)
___Finds math and computer games interesting (or if no exposure to computers, enjoys other math or science games)
___Enjoys playing chess, checkers, or other strategy games

Gambar 1. Checklist

2. Ask Student

Thomas Armstrong said that students are unlimited experts in multiple intelligences, because they themselves know their own personality [4], with this method we can do a test where students answer each question directly, the test can be in the form of an interview or a test , the author will use a test made by Dr. Siti Sriyati, M.Pd which was adapted from "The Rogers Indicator of Multiple Intelligences (RIMI) Test" [5]. When the answers to each question have been answered by students, each answer will be included in table 1 for the calculation process and looking for intelligence that is owned,

Table 1. Calculation of the question method

Jenis Kecerdasan	No.	Skor	No.	Skor	No.	Skor	No.	Skor	No.	Skor	No.	Skor	No.	Skor	TOTAL
Linguistik	1.	1	9.	1	17.	3	25.	1	33.	1	41.	1	49.	1	9
Musikal	2.	3	10.	3	18	1	26.	1	34.	3	42.	2	50.	2	18
Logika-Matematika	3.	2	11.	1	19.	5	27.	3	35.	2	43.	3	51.	4	20
Spasial	4.	4	12.	3	20.	5	28.	4	36.	1	44.	5	52.	5	27
Kinestetik	5.	1	13.	2	21.	1	29.	2	37.	5	45.	2	53.	2	15
Intrapersonal	6.	5	14.	3	22.	3	30.	2	38.	2	46.	3	54.	1	19
Interpersonal	7.	2	15.	4	23.	1	31.	1	39.	5	47.	1	55.	3	17
Naturalistik	8.	2	16.	1	24.	1	32.	1	40.	5	48.	2	56.	5	17

3. RESEARCH METHODS

3.2 Data Collecting Method

Data collecting method carried out in this study are as follows :

1. Study of Literature

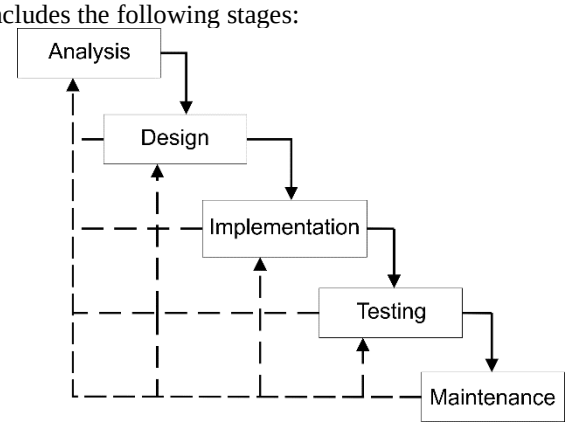
It is a method of collecting data by collecting literature, papers, journals and various other types of reading that are related and helpful to research

2. Interview

Conduct a question and answer to someone who is considered to be able to help extract information related to research

3.3 Software Development Method

In building a software system a development paradigm of Waterfall software is carried out, which includes the following stages:



Gambar 2. Waterfall Model

The Waterfall method is a sequential software development model, where progress will be considered when it goes down (like a waterfall) [6]. The steps of the waterfall model are as follows:

1. Analysis Phase: Often known as Software Requirements, at this stage the description of the behavior of the software to be developed is described, this involves system analysis and business
2. Design Phase: This is the process of planning and solving problems for software solutions, for example making algorithm designs,

database concepts, software architecture design and others,

3. Implementation Phase: This stage is where the actual code is written and compiled into an application
4. Testing Phase: This is also known as verification and validation which is the software checking process
5. Maintenance Phase: This stage is an activity where maintenance of the application is carried out

4. CONTENT OF RESEARCH

2.1 Ongoing procedure Analysis

The current condition analysis is carried out to explain how the conditions of the problem conditions have been indicated, from the results of this analysis it is expected that the system to be built can improve and find new things so that the shortcomings of the current conditions can be overcome by the system to be built, based on the results interviews with the school authors summarize the conditions of the MI assessment process as follows:

1. The teacher gets a paper containing MI indicators
2. When the teacher finds the reaction or nature of the student in this case in accordance with one of the indicators in the MI then the teacher gives an assessment in the form of indicator indicators that are successfully indicated to the student's MI paper.
3. The teacher calculates points for each MI intelligence that has been indicated
4. From the calculation results, each teacher can see the child's intelligence for the next as a benchmark in taking appropriate extracurricular activities.

2.2 Analysis of Procedure to be Built

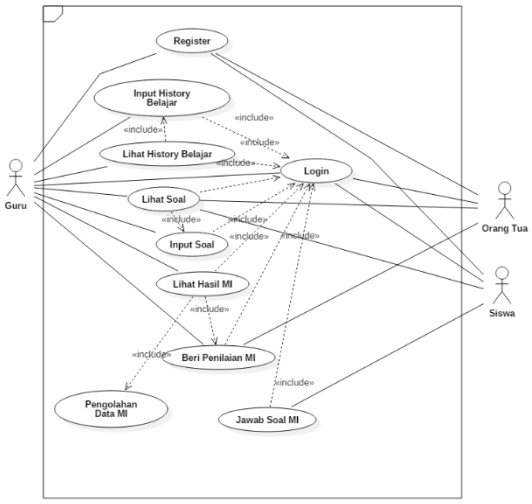
The procedure that will be built is a sequence of activities that are right from the stages that explain the process of what will be done, who will work on the process, how the process can be done, from the procedure analysis described above, the author will make the procedure as follows :

1. The teacher or parent enters the mobile application
2. Teachers or parents look for who students are to be assessed
3. The teacher or parent gives an assessment and the system stores the assessment
4. Teachers and parents look for student names if they want to see MI results
5. Teachers or parents can see the results of MI in the form of intelligence which dominates the students with the application

2.3 Functional Needs Analysis

2.3.1 Use Case Diagram

The following is a Use Case explanation of the system to be built

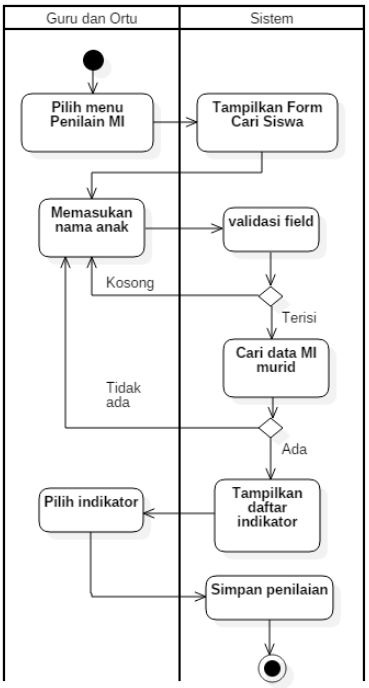


Gambar 3.Use Case Diagram

2.3.2 Activity Diagram

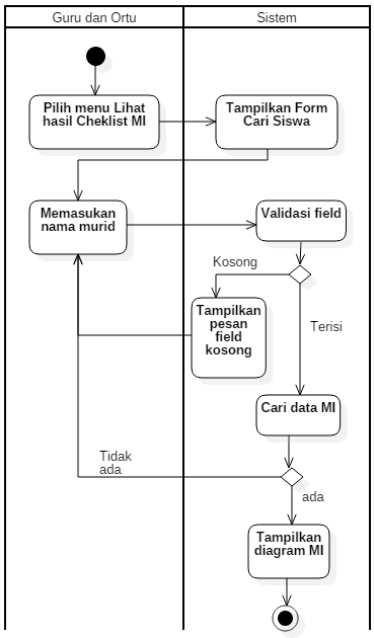
The following is an explanation of the Activity diagram of the system to be built

Figure 4 shows how the process diagram gives an assessment of MI



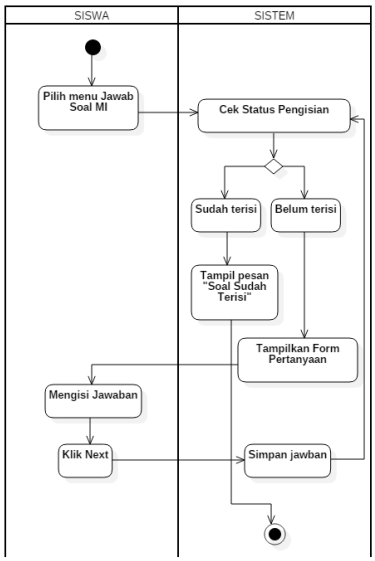
Gambar 4. Beri Penilaian MI

Figure 5 shows how the activity diagram processes the results of MI



Gambar 5. See MI Result

Figure 6 shows how the activity diagram processes the answer to MI

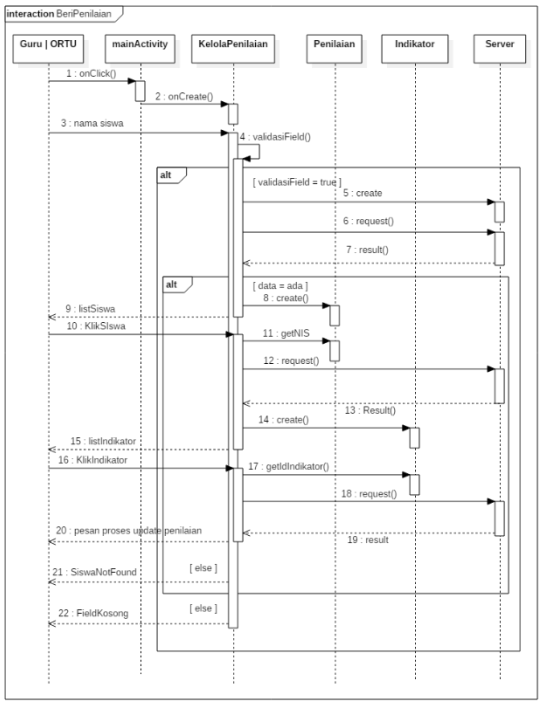


Gambar 6.Answer MI question

2.3.3 Sequence Diagram

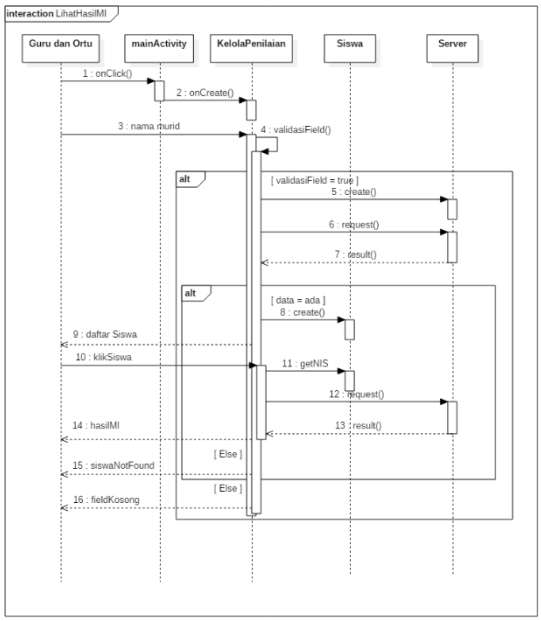
The following is a sequence diagram of the system to be built

Figure 7 shows how the sequence diagrams give an MI assessment



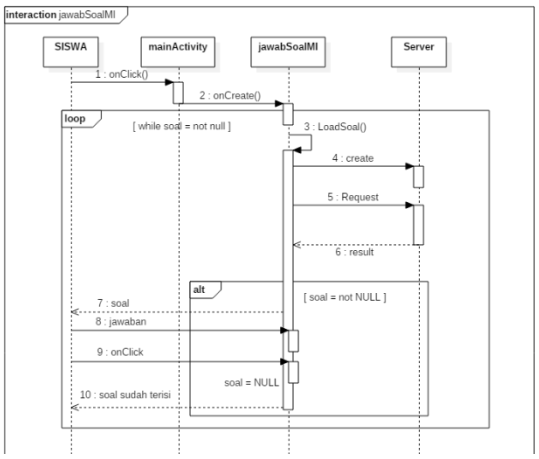
Gambar 7. Give MI assessment

Figure 8 shows how sequence diagrams look at MI results



Gambar 8. See MI Result

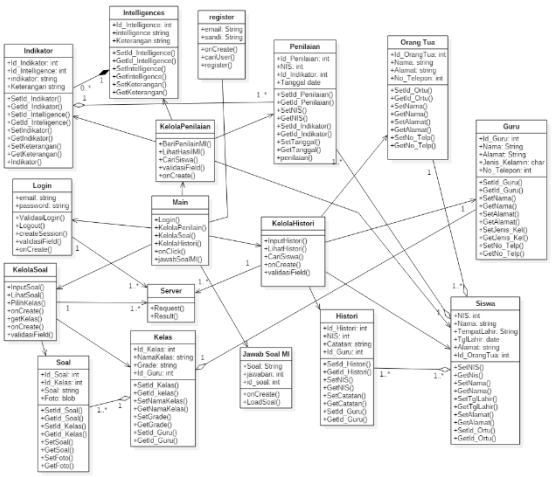
Figure 9 shows how sequence diagrams answer MI questions



Gambar 9. Answer MI Question

2.3.4 Class Diagram

The following picture 10 is a Class Diagram of the system to be built

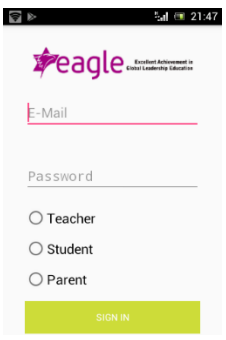


Gambar 10.Class Diagram

2.3.5 Implementation and Testing

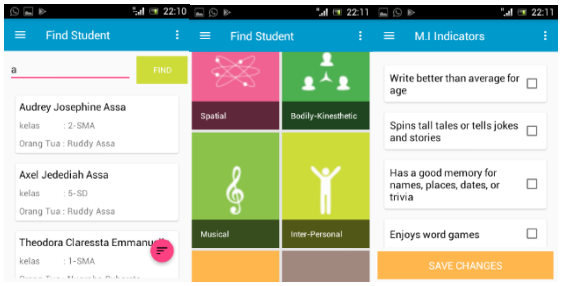
The following is an implementation of the design that has been made previously

Figure 11 shows the system user login page view



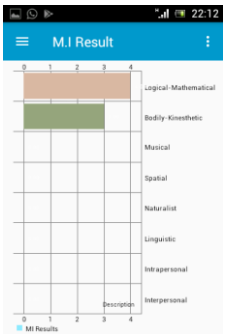
Gambar 11.Implementation of Login Page

Figure 12 shows the page view of the order to give an MI assessment



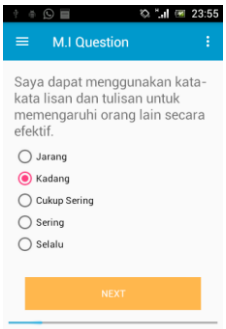
Gambar 12. Implementation of MI Assessment

Figure 13 shows the page view see MI results



Gambar 13.Implementation of See MI Result

Figure 14 shows the page view of the MI question



Gambar 14. Implementation of Answer MI Page

The testing process is carried out on users of this application, namely to the Teachers, Students and Parents of Students. Based on the results of the questionnaire that has been given to each respondent, it can be concluded that this application can facilitate the school in assessing multiple intelligences by both teachers and parents. In addition to this application, the assessment data will be easier to use than before. when using paper

3. FINALE

3.1 Conclusion

Based on the results of testing the EagleApp software on the Android platform, the following conclusions are obtained:

1. EagleApps application can make it easier for teachers and parents to provide multiple intelligence ratings for students
2. The EagleApps application can improve the application of Multiple Intelligence in Eagle schools

3.2 Advice

The EagleApps application is a software product used by EagleApps school to help implement the Multiple Intelligences method process in the learning process, therefore there are several suggestions that can be used as a guide for software development towards a better way to support the success rate of applications in helping MI processes and of course increase user satisfaction in using the application, while suggestions for smartfoodies software development are as follows:

1. Meningkatkan kualitas User Interface pada aplikasi agar pengguna lebih nyaman menggunakannya
2. Melakukan penelitian tentang User Experience kepada para pengguna untuk dapat diterapkan pada versi aplikasi berikutnya

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