ANDROID-BASED TALENT & INTEREST ALLOCATION APPLICATION

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Abstract

Someone needs soft skills to achieve success in society. Every organization implements a strategic planning model according to its characteristics. Higher education is an organization that forms generations and has a role in preparing future leaders of the nation. Thus, education has a strategic role in building student character. The implementation of character education for students can be through three activity paths: curricular, co-curricular, and extracurricular. The extracurricular path aims to develop activities for students' talents, interests, and hobbies, including reasoning, sports, arts, and special interests. Therefore, an application must identify and allocate student characteristics based on their intelligence-type tendencies. So that higher education can create targeted policies.

People use smartphones in every daily activity. So that applications that make it easier for users and provide benefits will be used and needed by the community. In this study, the application to detect student intelligence types is named Android-Based Talent & Interest Allocation (TIA). The research use 200 new students of Universitas Terbuka Padang. Based on data processing, 95% of respondents said the test results followed their daily character. Moreover, 88% stated that they applied the suggestions on the Mobile TIA application to select student activities and lectures. The suggestion for further research is to look at the learning outcomes and characters formed after one semester of implementing activities based on recommendations from the Mobile TIA application.

Keywords: Talent Management, Interest, Distance, Higher Education, Mobile Application.

1 INTRODUCTION

Law Number 20 of 2003 states as follows: "National education functions to develop abilities and shape the character and civilization of a dignified nation in order to educate the life of the nation, aiming to develop the potential of students to become human beings who believe and fear God Almighty, have noble morals, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens." The mandate clearly states that education develops students' potential into abilities based on faith and piety, personality, noble morals, and independence. Thus, education has a strategic role in building student character.

Therefore, to achieve national education goals, students are required to participate in student guidance activities as an inseparable part of education.

Here are some references related to the need for student activity strategies. Puspita et al. (2020) created a game specifically designed using the Finite State Machine method to educate users about organizing student activities. Ginantra et al. (2018) created an application that can provide convenience in managing activities and room usage and make it easier for students to get information about student activities on campus. Suarmanayasa (2017) discussed the development of student activity strategies at the Faculty of Economics, Ganesha University of Education.

Distance education has unique features and characteristics that are different from conventional education. Universitas Terbuka, as a distance education pioneer, has accepted and provided services to various types of students. Among the most prominent features is the diversity of age and domicile of students, even though they enter the same semester and study program. This uniqueness is a challenge, so Universitas Terbuka can always inspire users and the public because of its ability to provide targeted services to students.

Universitas Terbuka continually needs to improve its services to students according to their characteristics. Therefore, an application must identify and allocate student characteristics based on their intelligence-type tendencies. This is necessary so that UT can create practical and efficient activities, and students can feel the benefits of improving their skills. In this study, the application was named TIA, an abbreviation of Talent & Interest Allocation based on Android.

2 METHODOLOGY

This research is a development research, namely the creation of a mobile application to analyze the talents and interests of distance education students. The application is named TIA (Talent and Interest Allocation) and is based on Android. The study population was new Padang Open University Undergraduate Program students, Odd Semester 2024/2025. The number of samples was 200 with probability sampling techniques. Primary data uses the results of the Android-based TIA analysis for each respondent when the application is applied. Secondary data consists of domicile data, education profile, and intelligence type.

2.1 System Requirements

Detailed description of system requirements, functional and non-functional.

3.2.1 Functional requirements

1) Student domicile data with details of province, city/district, and sub-district.
2) Faculty profile, including details of study programs, semesters, and types of services.
3) The questions measure six types of multiple intelligences: linguistic, logical, mathematical, musical, kinesthetic, interpersonal, and intrapersonal. The variables and indicators of the instrument refer to the types of intelligence of Gardner & Hatch (1989), which have been implemented in psychology and other fields (Chen, 2004; Davis, Christodoulou, Seider & Gardner, 2011).

3.2.2 Non-functional requirements

1) Hardware requirements

   Android-based mobile phone or smartphone with a minimum memory of 2 GB.

2) Software requirements
   - Android Studio/Eclipse IDE for Java
   - Minimum Android Version 2.3.3–2.3.7 Gingerbread (API level 10)
3) Human resource needs

2.2 System Design & Architecture

2.2.1 Design

The Android-based TIA application design uses the UUnifiedModeling Language (UML) modeling system with four diagrams: the Use Case Diagram, Activity Diagram, Sequence Diagram, and Class Diagram.

2.2.2 System Architecture

The architecture of the Android-based TIA system is a modification of the website-based system (Fatimah et al, 2023). Android-based TIA is designed based on two levels, namely managers and students (Figure 1). The manager level functions to create a list of questions and view the profiles of all students and the results of their intelligence types. Meanwhile, the

student level includes requests for account creation, answering test questions, and receiving grades in intelligence dominance recommendations for appropriate activities.

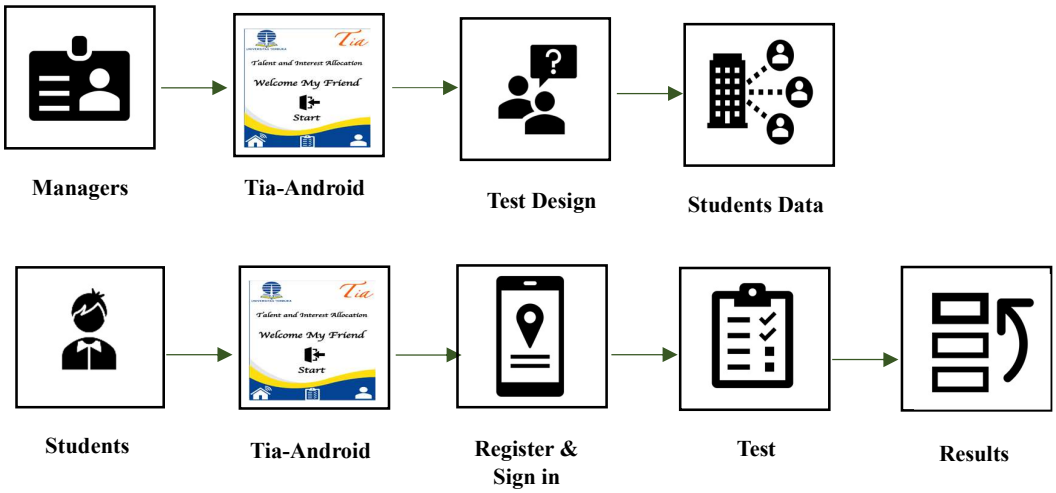


Figure 1. Android-Based TIA Architecture

2.3 Development Procedures and Data Analysis

2.3.1 Development Procedure

The application development procedure is a modification of the Borg & Gall model. The procedure starts with planning, product development, validation to experts, product revision, conducting application trials by taking actual data, then conducting the final revision of the product before being registered on the Play Store, and finally, mass production where TIA can be accessed on the Play Store (Figure 2).

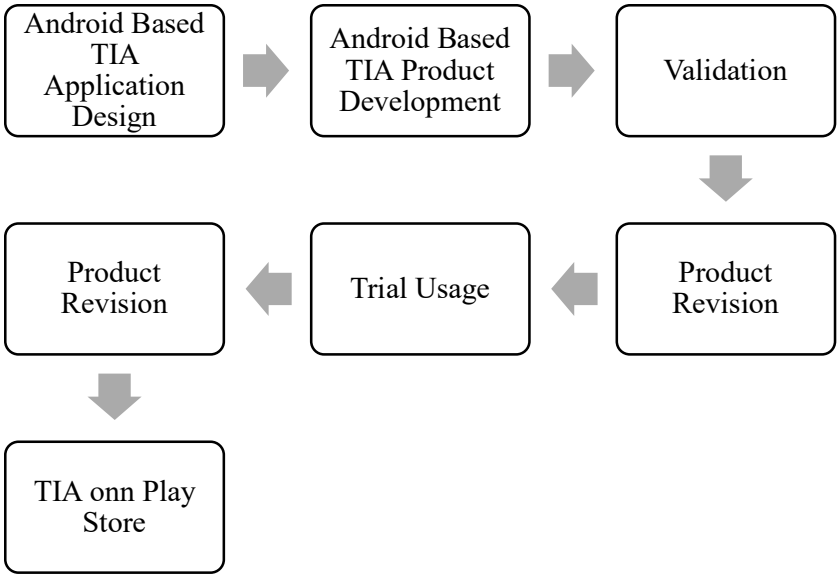


Figure 2. Android-Based TIA Development Procedure

2.3.2 Analisis Data

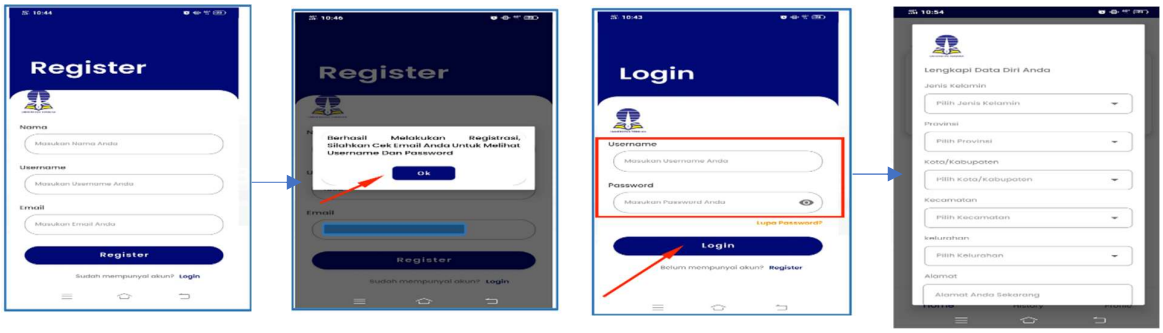
Analysis of the data from the field trials on UT Padang student data is denoted by $(U = \{u_i\})$ using an N-Soft Sets decision-making algorithm (Fatimah et al., 2018). The six types of intelligence are parameters and are denoted by $A = \{a, b, c, d, e, f\}$ namely linguistic (a), mathematical logic (b), kinesthetic (c), musical (d), interpersonal (e), dan intrapersonal (f). Each parameter consists of four measurement criteria (Fatimah, 2023). Students provide assessments in the form of rankings $R = \{0,1,2,3,4\}$ namely "never" (0), "very rarely" (1), "sometimes" (2), "often" (3), and "always" (4). So it is known $N = 5$. This example's threshold (T) is the value $r \geq 3$. The conclusion (k_A) is obtained if 75% of the parameters in the intelligence group meet the threshold, then the student (u_i) is categorized as having the type of intelligence according to the group.

3 FINDINGS AND DISCUSSION

The Android-based TIA application is an extension of the previously created website-based TIA application. The features in this application consist of menus that can still be added or developed further. Each menu has its process and data in the internal application.

3.1 Application Menu View

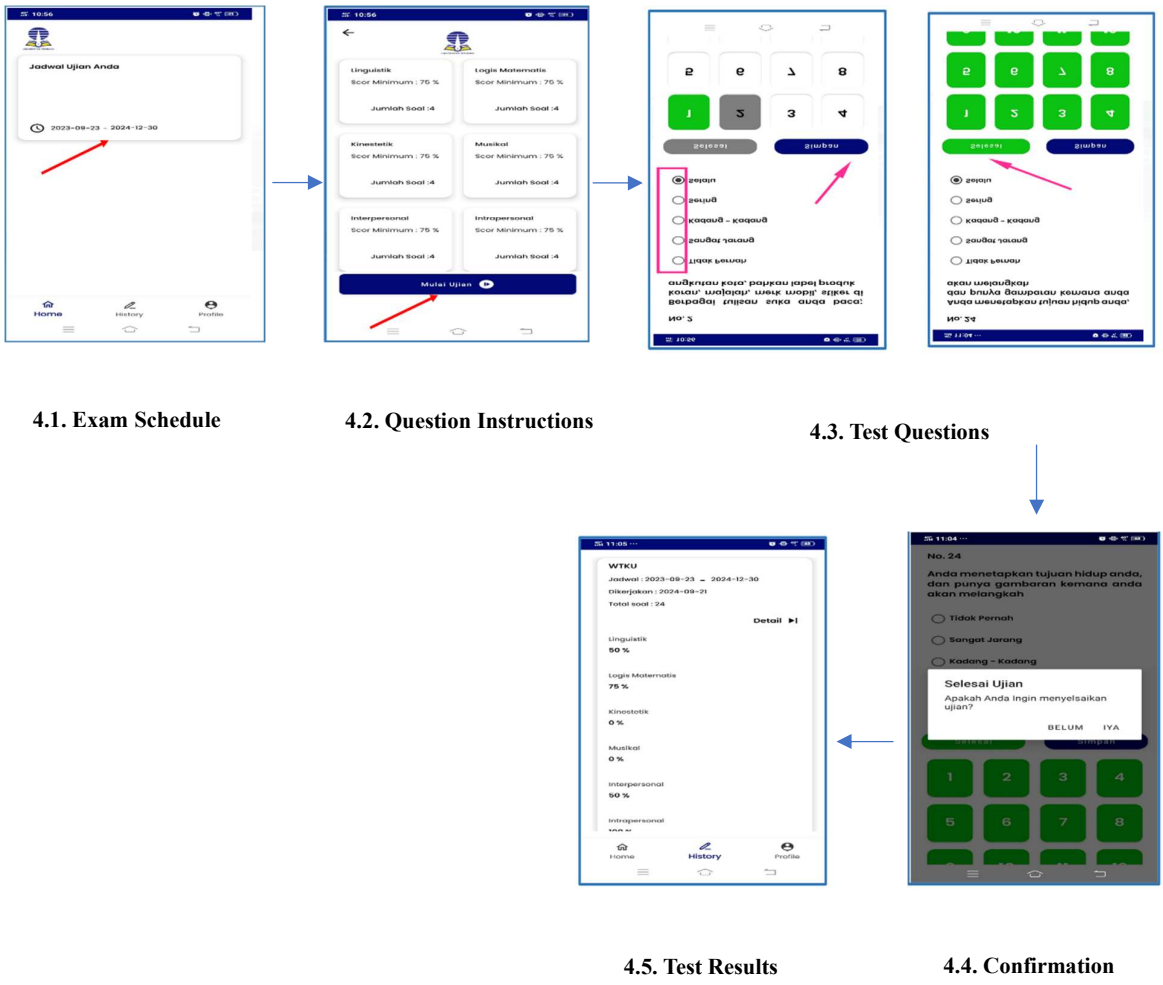
The main menu display of the Android-based TIA application displays the registration and login menu (Figure 3). In the registration menu, students submit an account request by filling in their name, username as Student Registration Number (NIM), and email address (Step 3.1). User and password notifications are sent to the email they registered, and then students log in (Step 3.2). Meanwhile, in the login menu, students fill in their profile, including gender, address, faculty, study program, semester, age generation, and type of service at UT (Step 3.3).



3.1. Register **3.2 Log in** **3.3 Fill in Data Profile**

Figure 3. TIA Android-Based Main Menu

The submenu display (Figure 4) includes the exam schedule, home, history, and profile (Step 4.1). After students select the exam schedule, information on question instructions appears (Step 4.2). In the exam submenu, students select answers according to their characteristics (Step 4.3). After confirming that the exam is complete (Step 4.4), the results will be obtained as scores for each type of intelligence recommendations for appropriate activities (Step 4.5).



Gambar 4. TIA Android-Based Application Sub Menu

3.2 Application Implementation Results

The application trial was conducted on 200 new students of Universitas Terbuka Padang. The respondent profile is presented in Table 1. Based on gender, the data obtained were 81% female and 19% male. Based on the generation profile, it is known that 21% of Generation Z (aged 13-22 years), 71% of Generation Y (aged 23-38 years), and Generation X (aged 39-54 years) only 8%. Meanwhile, based on the type of learning service, most students chose the Semester Package without Face-to-Face Tutorial, namely 83%, then 14% Non Semester Package, and only 4% took the Semester Package with Face-to-Face Tutorial.

Table 1. Respondent Profile

Profile	Gender		Generation			Types of Learning Services		
Type	Female	Male	Z	Y	X	Semester Package with Face-to-Face Tutorial	Semester Package without Face-to-Face Tutorial	Non-Semester Package
Sum	162	38	42	142	16	7	166	27

Based on the test results, 185 student data completed the test to completion. Based on the gender profile (Table 2), 55% of female respondents predominantly had intrapersonal intelligence, while 56% of males had more kinesthetic and intrapersonal intelligence.

Table 2. Intelligence Test Results Based on Gender Profile

Types of Intelligence	Number of Meets Criteria	
	Women (151 students)	Men (34 students)
Linguistic	52	15
Logical-Mathematical	73	15
Kinesthetic	70	**19**
Musical	51	10
Interpersonal	62	15
Intrapersonal	**83**	**19**
Dominant intelligence	Intrapersonal	Kinesthetic & Intrapersonal

Based on the age profile (Table 3), Generation Z and Generation Y have dominant intrapersonal intelligence of 50% and 51% of respondents, respectively. Meanwhile, 50% of Generation Y have Linguistic and Logical Mathematical intelligence.

Table 3. Generation Age Profile Intelligence Test Results

Types of Intelligence	Number of Meets Criteria		
	Generation Z (42 students)	Generation Y (142 students)	Generation X (16 students)
Linguistic	7	52	**8**
Logical-Mathematical	10	69	**8**
Kinesthetic	19	63	6
Musical	12	44	4
Interpersonal	14	54	7
Intrapersonal	**21**	**72**	7
Dominant intelligence	Intrapersonal	Intrapersonal	Linguistic, Logical-Mathematical

Based on the profile of the type of learning service (Table 4), intrapersonal is the dominant intelligence for the three groups of students for the Semester Package with Face-to-Face Tutorial, Semester Package without Face-to-Face Tutorial, and Non Semester Package with each percentage number respectively 86%, 52%, and 37%. Specifically, students in the Non-Semester Package category also have another dominant intelligence, namely kinesthetic (37% of respondents).

Table 4. Intelligence Test Results Profile Type of Learning Services

Types of Intelligence	Number of Meets Criteria		
	Semester Package with Face-to-Face Tutorial	Semester Package without Face-to-Face Tutorial	Non-Semester Package
Linguistic	2	57	8
Logical-Mathematical	3	77	7
Kinesthetic	2	76	**10**
Musical	2	53	5
Interpersonal	3	67	7
Intrapersonal	**6**	**86**	**10**

Dominant intelligence	Intrapersonal	Intrapersonal	Intrapersonal & Kinesthetic

Based on the results of the respondents' feedback, it was found that 95% of respondents said that the test results were under their daily character. Furthermore, 88% stated that they would apply the suggestions on the Mobile TIA application for selecting student activities and lectures.

This research recommendation is intended for institutions and individual students covering academic and non-academic activities. As higher education organizations, universities need to acquire skills to overcome today's competitive challenges (Pynes, (2008). The implementation of multiple intelligences is a collaboration between students and universities; the interconnectedness of mission, goals, processes, and outcomes in assessment; the need for more technology in the classroom (Kezar, 2001); and the relationship between affective and cognitive learning outcomes (Visser, Ashton & Vernon, 2006).

Recommendations related to academic activities can be adjusted to the type of learning service profile. However, in general, students are expected to be able to optimize their dominant intelligence to study courses, such as the research of Kusnadi Alrakhman (2022) on the relationship between knowledge, interests, and talents of a person and citizenship intelligence. For example, if the results of a student's test show that they are dominant in musical intelligence compared to logical-mathematical intelligence, then when studying mathematics courses, students can be accompanied by music or memorize formulas using easy-to-remember song tunes. For example, another student is known to have more dominant logical-mathematical intelligence than kinesthetic intelligence, so when studying physical education and sports courses, they can use a scientific data approach about the benefits of each theory and practice for health.

Recommendations for non-academic activities can be adjusted according to user profiles, namely gender and age generation. So that institutions or individual students can choose student activities that are right on target according to student potential. Not all activities are suitable for specific students, so students will choose one of the most in-demand and will be optimally successful when they know their potential. Some non-academic activities include

entrepreneurship development, proposal writing workshops, arts sports, leadership training, and social media.

4 CONCLUSION

Universitas Terbuka needs to improve quantity and quality continuously. Identification and classification of student intelligence are essential and will benefit UT and students directly. As an institution, UT provides a more targeted alternative according to the personality characteristics & and intelligence of each student group. Meanwhile, the benefits for students by knowing early on about the dominance of intelligence they have will have a positive impact on learning styles & and improving soft skills.

The Android-based TIA (Talent and Interest Allocation) application is an application that is easy to use, practical, and contains positive results & and recommendations for developing student skills. The TIA application can also simulate online exams for new students. For further research, researchers need to see the learning outcomes and character formed after implementing the Mobile TIA application.

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