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Analysis and design of intelligence test applications (psychotest) for job applications

Sutrisno Arianto Pasaribu[a], Victor Patar Pasaribu[b], M Fakrul Hirzi [c], Hamzah Arahman[d], Jerisekiawan Halawa [e]

[a,b,c,d,e] *Information Technology, University of Mahkota Tricom Unggul, Indonesia*

Email: [a]sutrisnopasaribu@gmail.com, [b]victorpasaribu1506@gmail.com, [c]mfakhrulhirzi95@gmail.com, [d]amjaharrahman@gmail.com, [f]jerihalawa1@gmail.com

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ABSTRACT

In this era of globalization, increasingly fierce competition in the world of work encourages companies to choose employees who not only have high academic qualifications, but also intelligence that matches job demands. Therefore, this research aims to develop and analyze the application of Intelligence Tests (Psychotest) as an effective job application assessment tool. System analysis and design methods are used to design applications that can measure various aspects of intelligence, including verbal, numerical and spatial intelligence. The analysis stage involves an in-depth understanding of the company's needs in assessing applicant intelligence. Meanwhile, the design stage includes the design of an intuitive user interface, an efficient database structure, and a valid and reliable intelligence measurement algorithm. This application is designed to be accessed online so that applicants can take intelligence tests anytime and anywhere. By using the latest security technology, applicant data security is guaranteed during the testing process. In addition, this application will provide test results automatically and present reports that are clear and easy to understand for companies. Through the application of the Test Intelligence application, it is hoped that companies can identify prospective employees who not only have technical qualifications, but also intelligence that matches the characteristics of the job being offered. Thus, this application is expected to make a positive contribution in increasing the efficiency and effectiveness of the recruitment process, ensuring appropriate employee selection, and ultimately improving company performance and productivity.

1. Introduction

The intelligence test is a learning medium or part of a selection series for prospective employees or employees who will take part in selection to enter the world of work[1][2][3]. Psychological testing is also a tool for capturing applicants' tendencies including intellectual abilities or personality, usually often referred to as psychological test questions[4][5].

Nowadays job competition is so tight, the way institutions or companies test their prospective employees is by submitting a number of psychological tests known as psychotests[6][7]. This test really determines the future of prospective employees and theoretically determines the potential of prospective employees[8][9][10][11]. In general, this psychological test model is relatively unchanged because it is made according to standards not only nationally but also internationally[12]. When working, this will of course be adjusted to the characteristics of the jobs available[13].

Psychological tests are often a scourge for job applicants, especially for those who have just graduated from education, because even though someone is smart and has a high Achievement Index in education[14], this will not guarantee that they will pass the selection to become prospective employees or prospective employees[15][16]. But actually psychological testing is not something new to the world of work[17]. In fact, we can easily find books about psychological testing in bookstores, or tips for dealing with psychological testing on several websites[18][19][20].

When studying this psychological test, most people still often use manual methods, and only get psychological test questions in certain places[4][21][22][23][24]. By utilizing increasingly sophisticated technology, data processing will become easier using several programming languages, including Microsoft Visual Basic and Web. Both programs are very popular at the moment.

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2. State of the Art

This research aims to develop an innovative approach in the analysis and design of psychometric intelligence test (psychotest) applications to improve the evaluation of job applicants[25]. We explore new methods in the development of intelligence tests that can provide more accurate and relevant results in the context of job applications[26]. Additionally, this research also focuses on user interface design that ensures a better and efficient user experience during testing[27].

Research methods include data collection from a variety of sources, including current psychology literature, statistical analysis of existing intelligence tests, and user interface design studies[28][29][30]. It is hoped that the results of this research can provide a solid foundation for developing psychotests that are more effective and relevant in the employee selection process[31]. The main contribution of this research is the provision of a new method for measuring applicant intelligence that is more sophisticated and reliable[32][33]. In addition, the optimized interface design will provide users with a more intuitive and efficient experience during tests[27]. This research not only focuses on developing better tests, but also on implementing the latest technology to improve the efficiency of employee selection processes in various industries. Here we will explain the facilities provided by this intelligence test application and explain how each control button functions in the designed software.

Psychological tests are a type of question instrument used to measure the level of creativity regarding how logic is formed from logic or tests to measure aspects of an individual psychologically[4][34]. The test can be applied to children and adults. This test can take the form of a written, projective, or verbal evaluation that is administered to measure a person's cognitive and emotional function or abilities[35].

The main purpose of the Intelligence Test is to measure various possibilities for various mental abilities and what supports them, including achievement and ability, personality, intelligence, or even neurological function[32].

Intelligence also has a function, namely differentiating a person's behavior from other people, namely by "taking a picture" of a person's character which, among other things, consists of their emotional state, talents and attitude in dealing with things[35].

Question Description:
Problem1 : 100 * 10 : 100 - 9 = ...
Question 2 : 16 * 2 : 8 - 4 = ...
Question 3: If S passes through P, add H. Some S don't have H. So:
Question 4: How much does the object that expands is metal. All metals are solids. So:
Question 5: ORIGINAL ><
Question 6: FAILED ><
Question 7: Donor ==
Question 8: FORMULA ==
Question 9: Wood - Trees = Gold
Question 10: Ice - Cold = Sugar -....
Question 11: WE: ME
Question 12: DEER: FAST
Question 13: 5,7, 10, 12, 15,....
Question 14 : 2, 4, 2, 4, 6, 4, 6, 8, 6, 8, 10, 8,....
Question 15: All bicycles have lights. Some lights are red.
Question 16: All singers are artists. While the singer is a film star.
Question 17: Most birds can fly. The ostrich is also a bird. So :
Question 18: Cooperative management should have a social spirit.
Some neighborhood association heads have been cooperative administrators. So :
Question 19: Every day, I enter the office faster than other employees.
What I did after arriving was....
Question 20: According to my colleagues, I am a person who .....

Description of Answer Type:
a. c.
b. d.

The following is a Flowchart for Designing the Main Intelligence Test Form.

Previous studies have recognized the potential of fuzzy logic in supply chain management. Research by Li et al. (2018) explored fuzzy rule-based systems for demand forecasting, demonstrating improved accuracy when compared to traditional methods. This work laid the foundation for integrating fuzzy logic into supply chain decision-making.

a. Grid Partition and Data Discretization:
Grid partitioning techniques have been studied extensively in data preprocessing. Wang et al. (2017) investigated grid-based data discretization methods for handling continuous data in various applications,

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including healthcare and finance. Their findings highlighted the effectiveness of grid partitioning in transforming continuous data into discrete categories.

b. Rough Set Theory in Supply Chain:

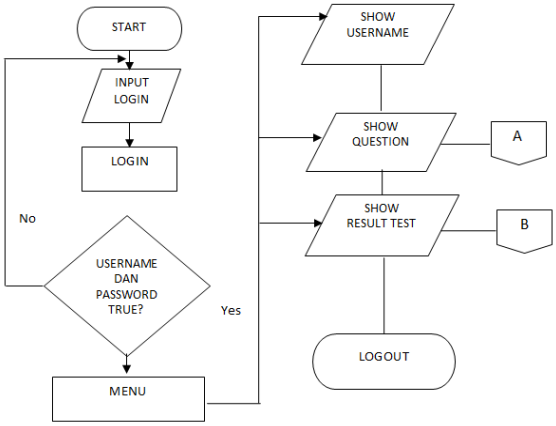

Figure 1. Flowchart for Designing the Main Intelligence Test Form

The following is a 2Flowchart for Designing User Name Form :

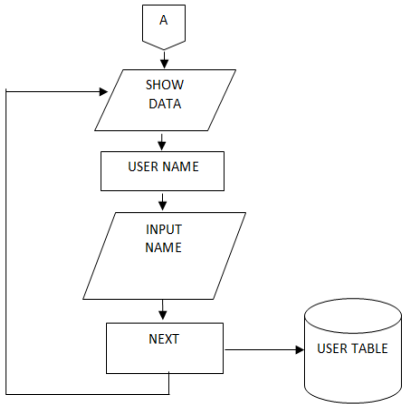

Figure 2. Flowchart for Designing User Name Form

These existing research efforts collectively demonstrate the growing interest in leveraging fuzzy logic, grid partitioning, rough set theory, and hybrid approaches to address the challenges of supply chain management. However, while each of these components has been explored individually, the proposed research on the integration of Hybrid Grid Partition and Rough Set Methods with Fuzzy Logic represents a unique and emerging direction, aiming to provide a holistic solution that combines the strengths of these techniques to enhance decision-making and adaptability in supply chain operations.

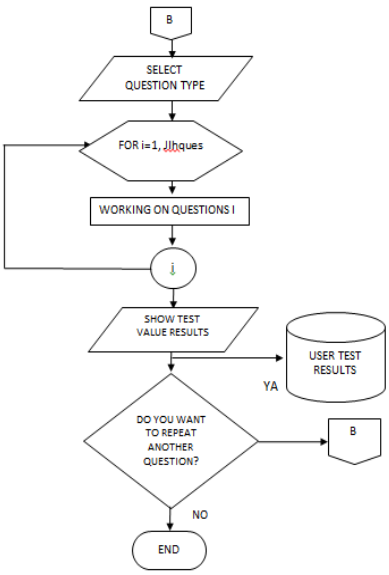

Figure 3. Flowchart for Designing Question Forms

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3. Results and Discussion

The The following are the results of research that was developed in the form of an Intelligence Test (Psychotest) application for job applications starting from the form display:

Main Menu Display of the Test Intelligence Application

After running the program, the main display of the Test Intelligence Application will appear as shown in the image below:

Figure 4. Display of the main menu in the Test Intelligence Application

Figure 4 contains the test menu that participants will take. The features found in the menu display are, arithmetic tests, logic tests, anonymous tests, synonym tests, word relationship matching tests, word comparison tests, series test, general logic tests and personal characteristics tests

Designing the Input Display for the Names of Intelligence Test Participants

This form is a form of design for the input display of examinee names from the design of the Test Intelligence program

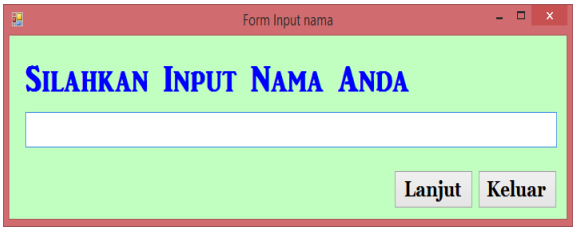

Figure 5. Designing the Input Display for the Names

Designing the Display on the Test Form

This form is a form of design for selecting and working on Intelligence Test questions

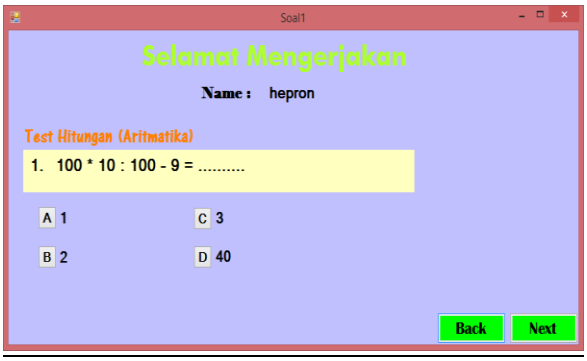

Figure 6. Designing the Display on the Test Form

Designing the Display on the Test Form

This form is a form of design to display the test results that we have carried out previously.

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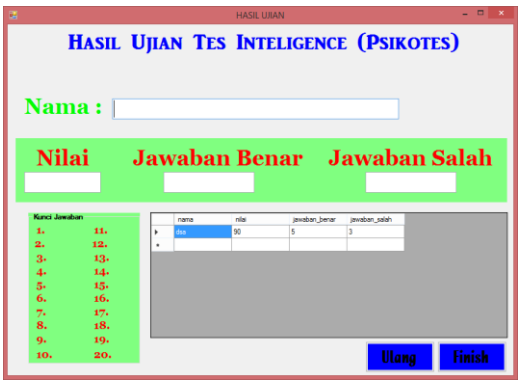

Figure 7. Designing the Display on the Test Form

The study concludes that the designed program has the capacity to significantly boost graduation rates for job applicants, suggesting a positive correlation between undergoing intelligence testing and successful employment outcomes. Notably, the application aims to enhance individuals' IQ abilities through tailored training tests, emphasizing a commitment to fostering cognitive development. The integration of this technology into the job application process is highlighted as a key driver of efficiency and cost-effectiveness. The research underscores the usefulness and benefits of the test results, implying that the assessments conducted through the application provide valuable information for both applicants and employers. Furthermore, the study emphasizes the application's role in facilitating the preparation of job seekers, portraying it as a tool that not only evaluates intelligence but also aids individuals in honing their skills for prospective employment. In essence, the findings suggest that this Intelligence Test application has the potential to revolutionize the recruitment process, aligning with the demands of a rapidly evolving technological landscape while simultaneously contributing to the overall improvement of company performance and productivity.

4. Conclusions

This conclusions obtained in the research entitled "Analysis and Design of Intelligence Test (Psychotest) Applications for Job Applications" are as follows: Designing the Intelligence Test program can help increase graduation rates for those applying for work. This Intelligence Test can improve a person's abilities, especially in IQ (Intelligence Question) abilities through the training tests provided in this application. With the rapid development of technology, it is possible for job applicants to save time and money, but can produce results that are very useful, beneficial and can make it easier for them to prepare themselves.

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