

TRAITSNAVIGATOR QUEST: GAMIFIED PSYCHOMETRIC CAREER ASSESSMENT

Abdul Aiman Hakim Abdul Aziz

College of Computing, Informatics and Mathematics, UITM Cawangan Melaka, Kampus Jasin, 77300

Merlimau, Melaka

2021899046@student.uitm.edu.my

Nurul Hidayah Mat Zain*

College of Computing, Informatics and Mathematics, UITM Cawangan Melaka, Kampus Jasin, 77300

Merlimau, Melaka

nurul417@uitm.edu.my

Article Info

Abstract

Psychometric career assessments in Malaysia are tools used to evaluate individuals' cognitive abilities, personality traits, interests, and other psychological attributes to help guide career decisions. These assessments are typically used by educational institutions, career counseling centers, and employers to match individuals with suitable career paths. Answering psychometric career assessments can be crucial for students, but traditional psychometric tests can often be boring and stressful. According to research, traditional methods of career assessment can cause students to feel anxious and stressed, leading to negative feelings towards the process. Additionally, the repetitive and lengthy nature of these tests can be tedious and demotivating. This project, called TraitsNavigator Quest, aims to address this issue by creating a fun, gamified psychometric career assessment. TraitsNavigator Quest seeks to make career assessment engaging by leveraging the popularity of games among teenagers. This project intends to create an application that helps you explore careers better and makes it fun to learn. The project aims to create a game-like interface for psychometric career assessments, develop a gamified application for these assessments, and evaluate how enjoyable the experience is for users. The Rapid Application Development (RAD) methodology will be used, as it is well-suited for efficiently building and refining the application. Seven of eight elements from the E-Game Flow model were implemented in this project: concentration, goal clarity, feedback, challenge, autonomy, immersion, and knowledge improvement. The results show that the project achieves an overall enjoyment percentage of 79.85%. Results indicated that the application needs to improve in increasing pleasure when answering psychometric questions. Future work could be utilized in projecting by improving these elements used in applications to enhance user enjoyment and engagement further.

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INTRODUCTION

In today's rapidly evolving job market, the transition from the realm of education to the workforce is a pivotal moment in a student's life. However, this transition often presents a formidable challenge. Students, despite their academic achievements, may not be adequately prepared to navigate the complexities of the professional world. As educators and employers increasingly recognize the importance of ensuring students possess the necessary skills and attributes for job readiness, there is a growing need for robust assessment tools that can accurately gauge an individual's readiness for the workforce.

Currently, various methods and tools are in use to assess student job readiness. Traditional assessments often rely on standardized tests, resumes, and interviews, among others. Many existing assessments lack engagement and fail to inspire students to showcase their full potential, thus limiting their effectiveness in identifying true job readiness. Traditional psychometric assessments are often challenged on a practical basis due to a variety of undesirable characteristics associated with their use in real-world employee selection. For example, self-report noncognitive measures are vulnerable to a variety of biases related to a person's ability to reflect upon themselves accurately and their motivation to do so honestly (Tett & Simonet, 2011).

Recognizing the limitations of the current assessment landscape, this project introduces a pioneering approach - gamification. Gamification leverages game elements and principles to boost engagement and stimulate active participation. Its potential benefits in educational and professional settings are well-documented. By incorporating gamification, the aim is to develop a gamified assessment tool for student job readiness, addressing the shortcomings of traditional methods and providing an immersive experience that motivates students to showcase their job readiness. This project seeks to bridge the existing gap in student job readiness assessment, heralding an innovative and dynamic era in education and career preparation. As noted by Bhatia and Ryan (2018), game assessment in human resource management aims to elicit and measure relevant constructs in employee selection. Traditional assessments can disrupt the learning process and often fail to inspire learners to invest effort, potentially compromising the validity of skill and attribute assessments. In response to these concerns, there has been growing interest in utilizing games to assess 21st-century skills, as seen in the work of Shaffer et al. (2009) and Shute (2011).

OBJECTIVES

The project aims to design and develop a gamified assessment application that is enjoyable to use for students. Gamification is intended as the integration of game elements and mechanics into a nongame context. The following specific objectives must be accomplished to achieve the primary goal: 1) To design a storyboard about gamified psychometric career assessment. 2) To develop a gamified psychometric career assessment. 3) To evaluate enjoyment experience in gamified psychometric career assessment.

SIGNIFICANCE

The importance of this project is to make career interest test accessible to students, counselors, and employees in an easy way with their tech-savvy preferences. Gamification refers to the practice of assessment professionals who modify existing assessments by adding game mechanics and applying game concepts to them (Landers et al., 2022). By using gamified assessment methods, we aim to offer an interesting approach to assist students in making career choices. Furthermore, the project leverages modern technologies, such as gamification and interactive assessments, to increase accessibility and engagement in the field of career guidance.

In addition, the project uses contemporary technologies, such as gamification and interactive assessments, to increase accessibility and engagement in the field of career guidance. The use of gamification elements will not only make the assessment process more interactive and fun but also meet the preferences of students who are used to digital learning experiences. This is supported by (Dulebohn et al., 2018), emphasizing the importance of adapting gamification elements to the needs and preferences of individual students. This can be done by using data analytics to track student progress and provide them with personalized feedback and challenges. This innovative approach aligns with the changing educational landscape and changing student needs, making career guidance more accessible and engaging.

LITERATURE REVIEW

Psychometric Career Test

A psychometric career test is an assessment used to measure an individual's cognitive ability, personality, or behaviours. According to Vitoratou et al. (2017), many methodological research accomplishments that date back to the late 1800s have given researchers and physicians efficient tools whose practical value becomes more evident in the era of the internet and big data. Nowadays, reliable probabilistic models have become available for the majority of data types and research problems. As the usability of the psychometric scales is better comprehended, there is an increased interest in applied research outcomes. Psychometric tests are standardized assessments that measure various aspects of an individual's mind and behaviour. This assessment can be broadly categorized into two types: ability tests and personality tests. Ability tests measure cognitive abilities like reasoning, problem-solving, and critical thinking stated by Salgado (2017). Personality tests aim to understand an individual's personality traits, values, and motivation.

Psychometric tests can have significant impacts on both employers and candidates, as evidenced by research from Roberston et al. (2016). For employers, they can improve hiring accuracy by identifying candidates with the right skills and cultural fit, potentially leading to increased productivity and reduced turnover. For candidates, tests can offer valuable insights into strengths, weaknesses, and preferred work styles, aiding in career exploration and interview preparation (National Careers Service, 2023). However, concerns exist regarding potential bias and limitations in accurately predicting job performance, highlighting the need for careful selection and interpretation of tests alongside other assessment methods (Cascio & Aguinis, 2018).

Gamification in Assessment

Gamification is intended as the integration of game elements and mechanics into a nongame context. Experts have talked about how incorporating gamification into education, specifically the use of games, can affect students' motivation to learn. The main purpose of playing gameful design is for the player to gain entertainment. According to Landers et al. (2022), Gameful design and gamification are most centrally distinct from games in that they

are design and redesign processes, respectively, and not technological products that can be played. When applied to assessment design, the developer's goal is generally to bring drivers of gameful experience into a non-game context. The difference between a normal and gamified assessment is the gaming components built into the assessment. Everything else, like the objectives and target, should remain the same.

Potential of Gamification as an Assessment Tool

With the use of gamification, formative assessments could be carried out more effectively by including students in tasks that, with careful planning, could yield useful data for all parties involved in education (teachers, parents, students, and school officials). Developing immersive gaming scenarios that satisfy evaluation quality criteria such as fairness, validity, and reliability. This is one of the primary obstacles in creating assignments for assessments. While most of the topics covered in this section are directly related to the formative evaluation, some of them are also slightly relevant to the summative evaluation. Therefore, when developing assessment tasks and integrating gamification, many considerations must be made. Based on all mentioned facts above, there are some more potential that gamified assessment promotes and offers for evaluation (Landers et al., 2022):

1. Tutorials and familiarization. Insufficient knowledge of navigation controls could have a detrimental effect on students' motivation and performance. Tutorials can be used to aid in this process of familiarization.
2. Accessibility issues. Rich, immersive graphical settings in games can place many demands on the player's vision, motor skills, hearing, and other senses just to be able to move around the area.
3. Replaying, number of attempts and revisions. Similar to feedback, measurement models must account for the quantity of tries and iterations.
4. Introduction of construct irrelevant content and skills. It is simple to include interactions and content in interactive gaming activities that enforce knowledge, skill, or other attribute (KSA) requirements that are not covered by the construct.
5. Interaction issues. The way individuals behave in games could not match the expectations for their performance on an assessment task. Unexpected or illogical interactions might arise from the environment. It is difficult to limit certain behaviours and capture the ones that will be used as evidence without making the game boring or repetitive.
6. Demands on working memory. Game-like examinations create demands on students' working memory that

are related to the difficulties of constructing irrelevant variance and interactivity. It is simple to raise cognitive processing demands in an assessment design that lowers measurement quality by incorporating increased levels of interaction and engagement. 7. Type and amount of feedback. The system's ability to provide high-quality evidence and motivate users may be affected by the availability of feedback. In order to evaluate the data collected from students' interactions with the assessment system, measurement models must consider the kind of feedback that has been given to them.

In this context, it is important to make sure that assessments are legitimate, dependable, and practically undetectable to maintain engagement, given the aim of employing educational games to enhance learning in school environments and others. Students undertake complex tasks depending on their abilities or skills that we wish to evaluate. For example, problem-solving skills and scientific research capabilities while spontaneously producing elaborate sequences of activities within the game. Thus, the players' interactions with the game itself give the elements required to evaluate their talents.

METHODOLOGY

RAD (Rapid Application Development) method helps project management techniques, development strategies, user involvement, and the use of tools to efficiently produce high-quality software in a fixed and short period, effectively dealing with time constraints in the development process (Ariff et al., 2015). Key components of the RAD methodology include iterative development and prototyping. The RAD model allows for improvements based on feedback from system users, with prototyping as an open approach and highlighting the importance of relationship management and change management. Compared to the waterfall model, the RAD methodology is recognized for its faster software development process, featuring only four main phases. Each phase produces a final product or delivery that smoothly transitions to the next phase. The RAD model creates continuous phases in which prototypes are rapidly developed until project requirements and objectives are met.

Given its focus on rapid development in a short period, the RAD methodology is particularly suitable for small-scale projects. Larger projects usually require a longer development period due to the need to carry out each step of the project carefully and thoroughly to avoid potential issues such as financial losses.

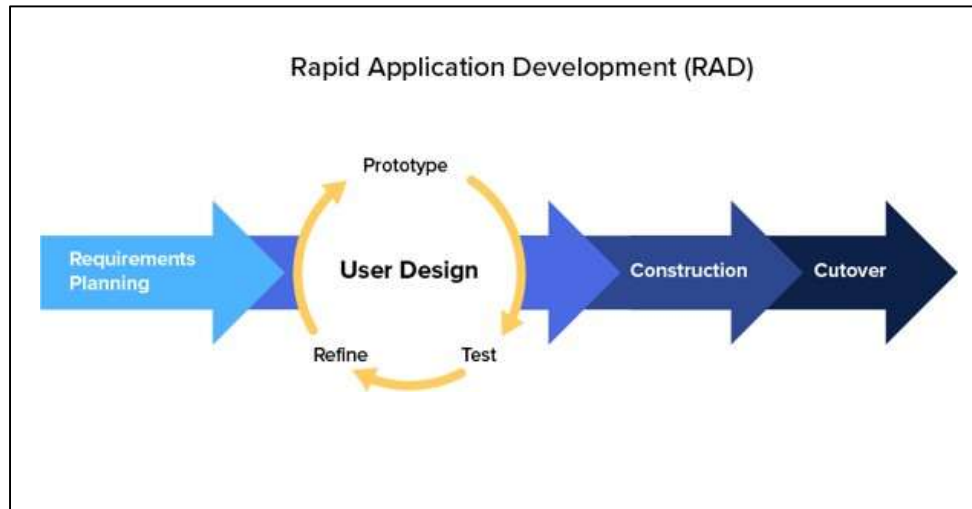


Figure 1: RAD model methodology process

The flow of the project is presented by the flowchart below in Figure 2. Upon entering the game, the player is presented with the main menu screen, where they can choose to either play, view information or quit. If the player selects the "Mula" button, they are directed to the first level, where a tutorial video appears before they can begin moving. The "Info" button, when clicked, displays a pop-up with an explanation of the game, providing players with additional information about the game's objectives and mechanics. To progress to the next level, the player must complete the current level. Each level features different difficulties and various steps that must be followed according to the instructions. Additionally, the player has the option to restart the level, which requires them to start from the beginning.

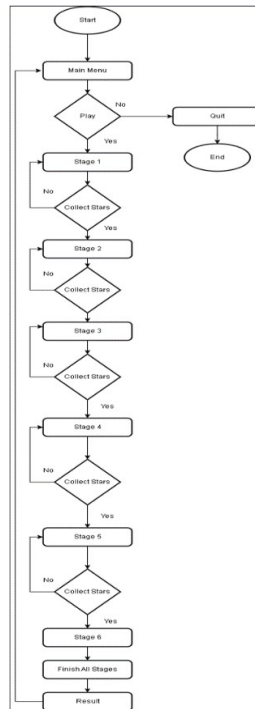


Figure 2: Flowchart of TraitsNavigator Quest

TraitsNavigator Quest is a gamified psychometric career assessment application designed to make career exploration fun and engaging for teenagers. The web-based application features six different levels, each with a unique objective and ten questions that must be answered before revealing the results. An initial animation video demonstrates the full process, followed by checkpoints for users to review each step. Users engage in an immersive game that provides indicators for successful movements. This innovative approach aims to transform traditional, stressful psychometric tests into an enjoyable and educational experience. Figure 3 shows the user interface for TraitsNavigator Quest.

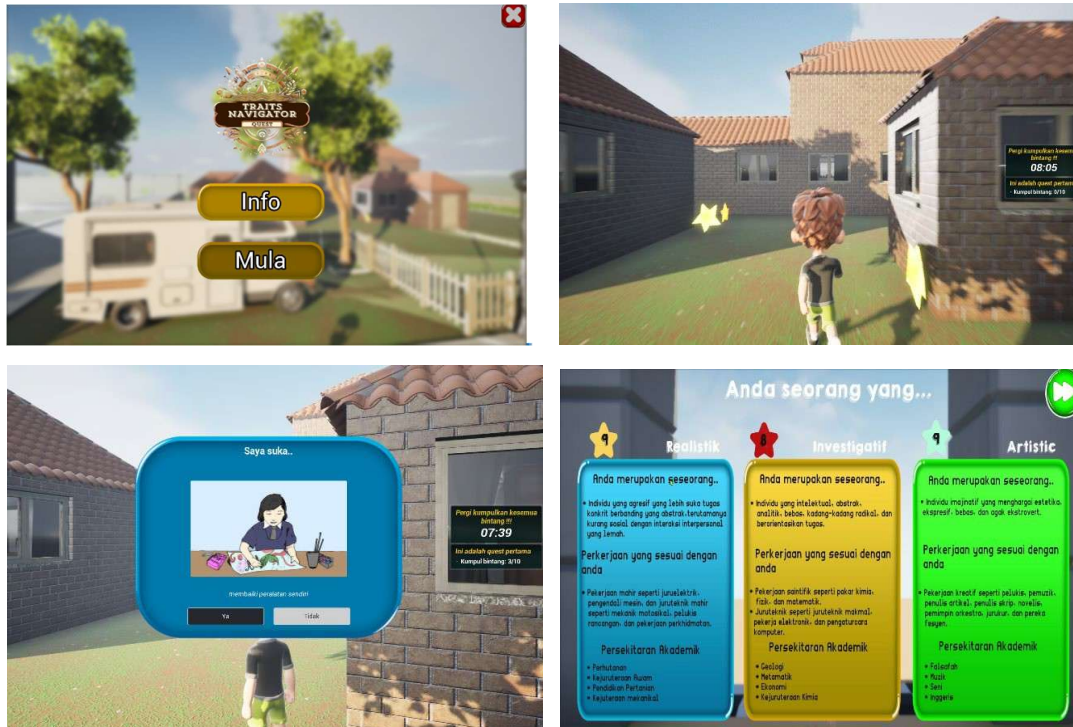


Figure 3: Interface of TraitsNavigator Quest

CONCLUSION

In conclusion, TraitsNavigator Quest provides an enjoyable and entertaining experience for users to take psychometric career assessments. By incorporating gamified elements, the app focuses on achieving game goals instead of just answering questions, which increases the player's enjoyment. The project perfectly achieved its objective of providing a fun assessment experience. Some of the proposed improvements for further realization include increasing compatibility of the app between devices and platforms, including more diversified gamification, and improving 3D graphics so that the full potential of the app may be unleashed. With this, TraitsNavigator Quest may become more accessible and appealing to a wider audience.

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