i-SPiKE 2023

INTERNATIONAL EXHIBITION & SYMPOSIUM ON PRODUCTIVITY, INNOVATION, KNOWLEDGE & EDUCATION

"Optimizing Innovation in Knowledge, Education and Design"

EXTENDED ABSTRACT

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CATEGORY: ASC ACADEMIC INVENTOR

Assalamualaikum warahmatullahi wabarakatuh,

First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality . I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

Professor Dr. Roshima Haji Said
RECTOR
UiTM KEDAH BRANCH

WELCOME MESSAGE (i-SPiKE 2023 CHAIR)

We are looking forward to welcoming you to the 3rd International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPiKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is "*Optimizing Innovation in Knowledge, Education, & Design*". We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPiKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPiKE 2023; your dedication and hard work are greatly appreciated.

Dr. Junaida Ismail
Chair
3rdInternational Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPiKE 2023)

GAMIFYING TAX LEARNING: RPGT INTERACTIVE GAME FOR EFFECTIVE TAX EDUCATION

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ABSTRACT
Studying tax courses, such as Real Property Gains Tax (RPGT), can present notable challenges for students. One of the main hurdles encountered in tax courses is the complexity and technicality of tax laws and regulations. RPGT, with its intricate calculations and numerous components, can be particularly daunting. Traditional teaching methods often rely on theoretical explanations and static examples, which can fail to engage students effectively. As a result, students may struggle to grasp the practical application and implications of RPGT. RPGT interactive game attempts to address these challenges by infusing the learning experience with gamification elements. RPGT is suitable for gamification since it is a stand-alone topic and requires the students practice the application of knowledge, and therefore selected for this innovation project. By incorporating RPGT concepts into interactive games, students will be drawn into an enjoyable and immersive environment. The RPGT interactive game was thoughtfully designed to align with the specific learning objectives of the RPGT topic within a tax course. This gamified approach would enhance engagement, as students can actively participate in decision-making, strategize their approaches, and see the consequences of their choices. From survey conducted for this study, most of the respondents (95%) agreed that the game is able to improve their level of understanding and increase their knowledge regarding the RPGT. The interactive nature of the games fosters a sense of excitement and challenge, increasing student motivation and interest in learning RPGT. This innovative approach has the potential to revolutionize tax education, making it more accessible, enjoyable, and effective for students.

Keywords: tax education, educational games, gamification, student engagement,

1.0 INTRODUCTION

1.1 Real Property Gain Tax (RPGT)

RPGT was introduced in Malaysia in 1975. The tax covers all gains arising from disposal of properties. The topic is quite distinct from the normal income tax since it involves capital gains which is excluded from the computation of income tax. The Diploma in Accountancy students in University Teknologi MARA (UiTM) are introduced to this topic in their Semester 5. The topic covers the type of properties that subject to tax, the computation of gains by deducting acquisition price from disposal price and the determination of tax rates by computing the number of holding years.

1.2 Gamification in Tax Education

Gamification has been increasingly accepted as a teaching tool in higher accounting education (Queiro-Ameijieras et al., 2019) and in continuing education for accounting professionals (Surgent, 2022). Gamification provides an engaging learning environment that enhanced perception of the knowledge and improved performance (St Bernard, 2023). The most impactful features of gamification are that it provides immediate feedback, allows experimentation and freedom to fail, interactive user interface, and enhanced understanding through visual representation of process (St Bernard, 2023). Among the gamification benefits to the accounting students are higher levels of satisfaction as compared to traditional methodologies, the development decision making and teamwork skills and higher awareness accounting application due to immediate feedback provided on their decisions (Queiro-Ameijieras et al., 2019). In addition, gamification also creates an interesting accounting teaching and learning environment, encourages and subsequently increases critical thinking skill and increases comprehension on accounting knowledge (Rosli, Khairudin & Saat, 2019). It is suggested that an effective game should be part of different teaching methods, i.e., introductory lectures, and must be contextualized and integrated with prior-session and post-session information and activities (Scurati et al., 2023).

1.3 Scope and Objective of Innovation Project

Tax is one of the areas that is considered as boring in accounting education. Lecture is the most used knowledge delivery technique in tax courses, and therefore, gamification is one of the ways to address this issue. RPGT is suitable for gamification since it is a stand-alone topic and requires the students practice the application of knowledge, and therefore selected for this innovation project. The objective of the project is to enhance understanding of the students of through self-learning practical experiences.

2.0 PROBLEM STATEMENT

RPGT poses significant challenges to students in their learning journey for tax courses. The complexity and technicality of RPGT, combined with the limited practical application provided by traditional teaching methods, hinder students' comprehension and practical skills development. Furthermore, the absence of specific online games focusing on RPGT further limits students' access to engaging and interactive learning resources. This highlights the

pressing need for the creation of RPGT games as an effective educational tool to address these challenges.

3.0 THE PRODUCT: RPGT INTERACTIVE GAMES

The RPGT interactive game was thoughtfully designed to align with the specific learning objectives of the RPGT topic within a tax course. It offers engaging and interactive modules that cater to learners, helping them grasp complex tax concepts effectively while making the learning experience enjoyable. Figure 1 summarizes the process flow for the product development.
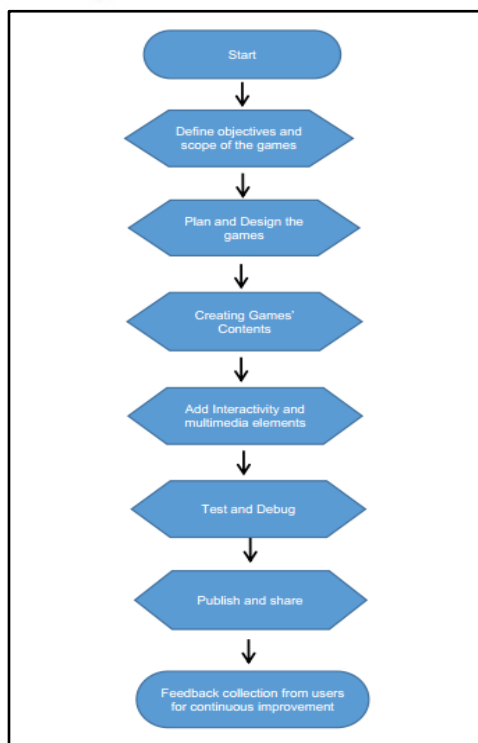

Figure 1: Process Flow for RPGT Interactive Games' Development

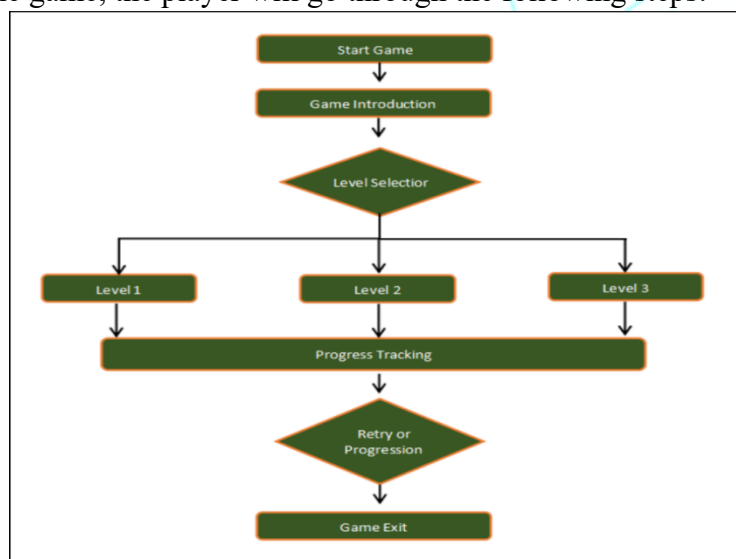In order to play the game, the player will go through the following steps:

Figure 2: Flow chart of RPGT Interactive Games' Steps

(i)   Start Game: The player launches the RPGT games application or accesses the game through a designated platform.

(ii)   Game Introduction: The game provides an introductory screen that explains the purpose and objectives of the game.

(iii)   Level Selection: The player chooses the desired level of difficulty or progression within the game, as shown in Figure 3 below.

Figure 3: Main Menu of RPGT Interactive Game

There are three (3) levels of progression provided in the game which include:

Level 1: Fundamental Knowledge Challenge
     This level aims to test the player's understanding of the fundamental RPGT concepts and principles. It consists of three (3) selections of games: pathway game, crossword puzzle, and drag & drop game.

Level 2: Calculation Mastery Check
     This level challenges the player's memory and comprehension of computation formats and formulas for RPGT. It comprises four (4) games: RPGT chrono order, RPGT Drag Logic, RPGT Format Filler 1, and RPGT Format Filler 2.

Level 3: Scenario-Based Computation Challenge
     In this level, the player needs to analyze, interpret, and solve RPGT computations based on the given real life scenarios, showcasing their ability to apply RPGT knowledge in realistic situations. There are four (4) games provided under this level: CompuQuest 1, CompuQuest 2, CompuQuest 3, and CompuQuest 4.

(iv)   Progress Tracking: The game tracks the player's progress and keeps records of the player's scores for each completed challenge.

(v)   Retry or Progression: After completing a level, the player can choose to retry the same level to improve their score or progress to the next level.

(vi)   Game Exit: The player can choose to exit the game at any level.

4.0 METHOD

The research method employed in this study involved the distribution of questionnaires to gather feedback regarding the game. The measurements in the questionnaires were adapted from the previous research conducted by Scurati et al. (2023). There are four sections involved in the questionnaire. Section A asked about the basic demographic profile of the students. Section B asked about the respondents' perception towards the RPGT interactive game that consist of five components separately, with five questions each, rated on a 5 Likert scale ranging from (1) Strongly Disagree; (2) Disagree; (3) Neutral; (4) Agree; (5) Strongly Agree. These five components included gaming experience, system thinking, knowledge,

awareness/attitude as well as openness and collaboration. Section C asked about the respondents' satisfaction towards the RGPT interactive game while the last section asked about any comments from the respondents regarding the game for future improvement. A total of 101 responses were received from the participants. The descriptive analysis was used to summarize the data.

From May to June 2023, the questionnaires were constructed and distributed to the students to solicit their feedback on the game after creating and adding some interactivity and multimedia elements. In July 2023, data collection and analysis were conducted and the RPGT interactive game was put forth. Currently, the plans are underway to present the survey results at a conference and publish them in an indexed journal. The product is also in the process of application to get the copyright for the commercialization purpose.

5.0 RESULTS AND DISCUSSION

Figure 4 illustrates the feedback obtained from the students regarding their perception towards the RPGT interactive game. Based on these results, most of the respondents (95%) agreed and strongly agreed that they have experienced enjoyable and fun for the game. Besides that, they also agreed that the game was able to improve their level of understanding and increase their knowledge regarding the RPGT. In addition, many of them (93%) also believe that this game made them more aware and concerned about the importance of RPGT for the country. In terms of openness and collaboration, most of the respondents (94%) agreed that the game allowed them to foster their collaboration skills and they are also willing to share the experience with other students either from different or same course.
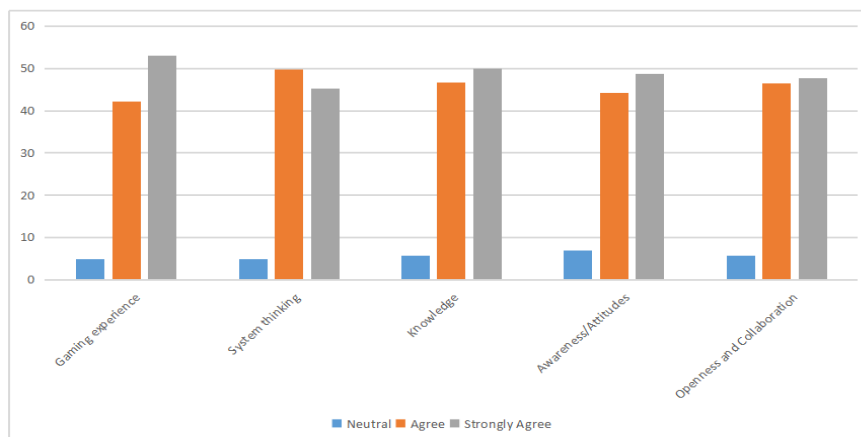

Figure 4: Students' Perception Towards RPGT Interactive Game

Figure 5 presents the results about the level of satisfaction among the respondents towards the game. Based on these results, we can conclude that most of the respondents (88.1%) were satisfied with the game. However, there were some comments that we managed to gather throughout this survey. Among of these comments include: *(1) I love how the game was created since it actually has a lots of information and it was given in infographic types which makes students excited and easier to understand this topic. I would like to suggest putting the correct answer or information if the player choose the wrong answer so that they can learn and know the correct answer directly and learn from it, (2) The objective of the game is very clear and it makes me easier to understand about RPGT. Other than that, by watching the game, it helps me to memorize better about the RPGT topic, (3) This game is very fun and the animation is*

very impressive. I personally think that I've learned so much regarding RPGT just from watching the game play. Thus, all these comments were important for us to improve the game in the future especially in terms of design and content.
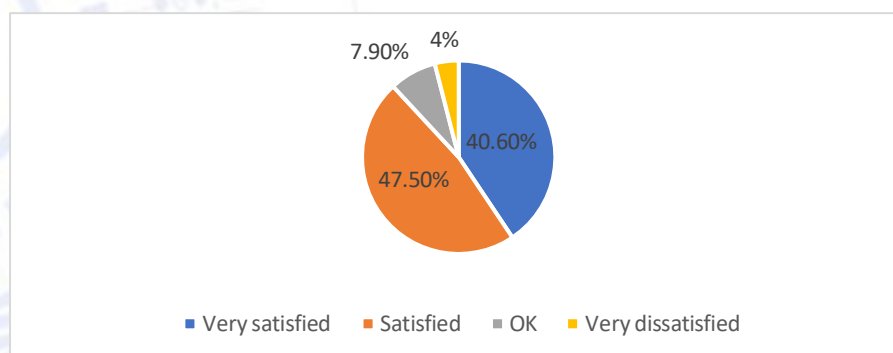

Figure 5: Level of Satisfaction towards the RPGT Interactive Game

4.0 CONCLUSION

Integrating gamification such as RPGT interactive games into tax courses may address the challenges faced by students in studying tax, including the complexity of the subject matter and the lack of engagement. By offering an interactive and immersive learning experience, RPGT interactive games enhance understanding, promote practical application, increase engagement and interest, encourage critical thinking, and facilitate knowledge retention. This innovative approach has the potential to revolutionize tax education, making it more accessible, enjoyable, and effective for students.

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