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Empowering Students Towards Educational Innovation

VIRTUAL CHEMITHON AND PHYSICSTHON

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ABSTRACT

The pandemic COVID-19 has become a global health issue and has had a major impact on education. The way of learning has changed from face to face classes to online distance learning (ODL), whereby learning is undertaken remotely on the digital platform. Research has shown that online learning has the advantage of high efficiency, accessibility of time and place, and suits various learning styles. Despite these advantages, the student still finds it difficult to undergo online learning due to lack of focus, technology issues and longer screen time. As a result, most students feel demotivated, burnt out, and bored with the same routine during online classes. A survey conducted at UiTM Cawangan Pulau Pinang among pre-science students on the perceptions towards the final exam for chemistry and physics subjects shows that 70% of the students feel stressed about the exam, and 59% is not confident enough to score A for both subjects. One of the reasons is that students find chemistry and physics subjects difficult to understand and what's more with online learning. Using old and conventional revision styles with long ODL sessions worsens student performance. Thus, to help students better prepare for the chemistry and physics examination, a new semi-guided revision learning style that combines physical activity and practice questions has been developed. "Virtual Chemithon and Physicsthon" was created to help students understand and systematically revise the course, which could lead to better performance in both subjects. This Virtual Chemithon and Physicsthon not only help the student to revise and answer the question for the preparation of the final exam but also encourages the student to lead a healthy lifestyle and enhance the student's happiness index. The Virtual Chemithon and Physicsthon come with an e-template and where students need to complete the task and submit the e-template online to get an e-certificate. Students are required to answer all questions from each chapter and complete a 1-3 km run between chapters. At the end of this semi-guided revision, the student answered all questions and simultaneously completed a 10 km run. This new revision style ensures students have breaks between studies and encourages them to exercise. It also helps increase brain speed, improve emotional health, wellbeing and reduce stress. Research has also revealed that exercise after revision can help students retain information. It is hoped that using this semi-guided new revision style could improve students' performance in physics and chemistry.

Keywords: Chemithon, Physicsthon, Revision, Exercise, Healthy lifestyle

1. INTRODUCTION

The COVID-19 disease has been declared a public health emergency worldwide by the World Health Organization (WHO). The COVID-19 crisis has forced educational institution closure in over 188 countries[1]. During this pandemic, the shift to online distance teaching and learning (ODL) brought about a real challenge for both educators and students[2]. They were forced to rapidly adapt to online learning. Even though online learning has been proven to help students excel academically, many students still find it challenging to adapt to online learning. One factor contributing to students' negative perception of online learning is the lack of face-to-face communication. Most online learning focuses only on theory rather than practice, and it requires the student to have strong self-motivation and good time management skills. The old and conventional online learning method also causes students to lose interest in the subject [3]. A survey conducted among pre-science students of UiTM Cawangan Pulau Pinang shows that 87% of the students still have their ODL classes from home. The results also show that 70% of the students felt stressed about their final exam, and 59% did not have confidence that they would get an A for chemistry and physics. It is also related to the fact that most of the students find that chemistry and physics are subjects that are difficult to understand and score.

There are various techniques and tips for revision are available for students. Most of the tips stated that having a lot of practice questions and good physical and mental health are among the factors that affect the effectiveness of the revision technique. These findings show that there is a need for a new revision learning method that can help students to do their revision in a fun way and having a balance between academic performance and good health. Thus, we have developed a new revision learning method to help students study chemistry and physics for the final examination by Virtual Chemithon and Physicsthon. Virtual Chemithon and Physicsthon is a new semi-guided revision learning style that combines both brain and physical exercises by answering a set of questions together with a virtual run. It is well known that the exams periods are commonly reported to be a stressful experience for the students [4] thus this concept will hopefully allow the students to enjoy their revision time compared to the old way of revising. Students also tend to spend more time focusing on revising for the exam without caring about their mental and physical health. Hence, this Virtual Chemithon and Physicsthon are created to balance between studying and taking care of physical and mental health. The reason for combining run together with normal revision is the fact that run provides benefits to the students by improving health, preventing disease, increasing energy level, boosting confidence, releasing stress, and it has the power to prevent depression. Studies also suggested that exercising released hormones that have a fundamental role in happiness [5]. This project aims to develop a semi guided revision learning style combining practice questions and physical activity to improve the academic performance for subjects CHM083 and PHY083 and enhance the happiness index and students' healthy lifestyle.

2. MATERIAL AND METHOD

Virtual Chemithon and Physicsthon is a new revision learning method where the student will get to revise the subject and exercise in between breaks. It is suitable for students to study or revise for the final examination. The main idea is to combine virtual marathons with revision. The steps to take part in Virtual Chemithon and Physicsthon is given in Figure 1. Virtual Chemithon and Physicsthon require the student to first register via a google form. The student will then receive an email with the e-BIP for the marathon and an e-template, as shown in Figure 2 and Figure 3, respectively. Next, the student will complete the task on the e-template. It includes answering each chapter's question and going for a run in between revision breaks. Students are required to answer questions from each chapter, and after completing a chapter, students need to fulfill one physical activity, a 2-3 KM virtual run/walk. Students can fill in the e-template to record the completed task. After the task is completed, the students must submit the e-template for Chemithon and Physicsthon and the proof of running/walking through a google form. Upon completion of the task, the student will be given an e-certificate for their achievement to successfully complete the task together with the answer scheme. The sample for the e certificate is shown in Figure 4.

The purpose of having the Virtual Chemithon and Physicsthon is to encourage students to exercise instead of only focusing on studying for the examination. Research has shown that physical exercise improves brain health and cognition, enhancing school performance and general functioning [6]. On top of that, it also increases brain speed, improves emotional health wellbeing, reduces stress, and helps to better retain information.

3. RESULTS AND DISCUSSION

The novelty of this project is that it is the first of a kind revision learning style of combining physical activity and practice questions that promote a healthy lifestyle among students, leading to good emotional and physical wellbeing on top of the excellent performance in CHM083 and PHY083. The benefit of this learning style is that it is an independent student-centered learning style that helps provide a stress-free environment for the students. It will also increase students' performance in CHM083 and PHY083. Furthermore, it helps to promote a healthy lifestyle and stimulate memorization among students. It is also considered an environmentally friendly method as it is 100% online, and no paper is needed in the process.

3.1 TABLE, IMAGE AND FIGURE

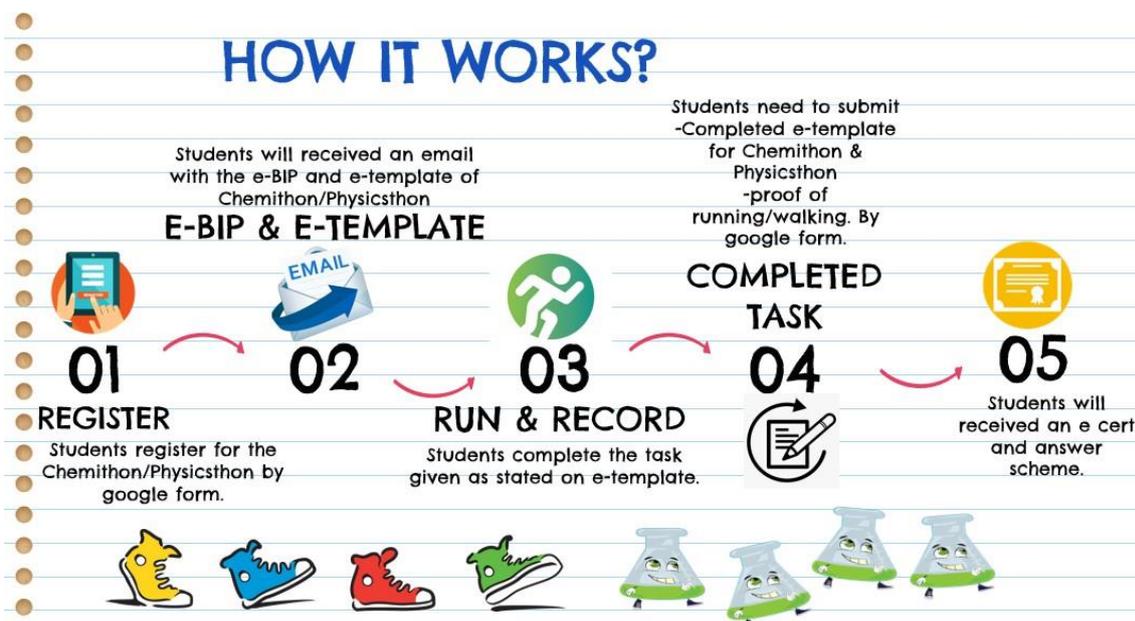


Figure 1: Steps for Virtual Chemithon & Physicsthon



Figure 2: The e-BIB for the Physicsthon

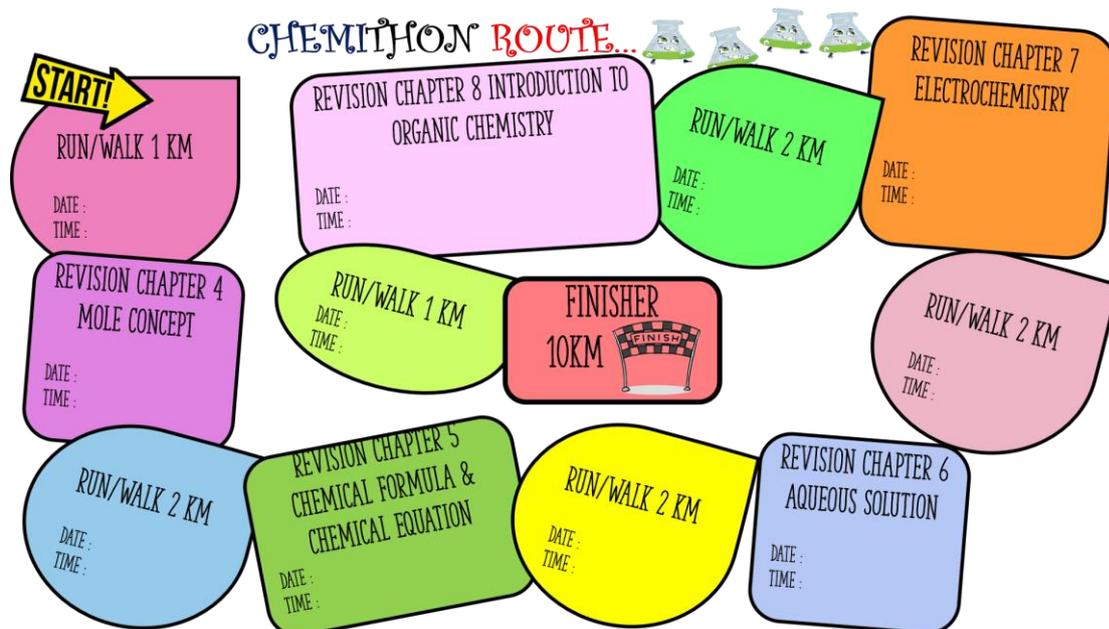


Figure 2a : Chemithon e-template

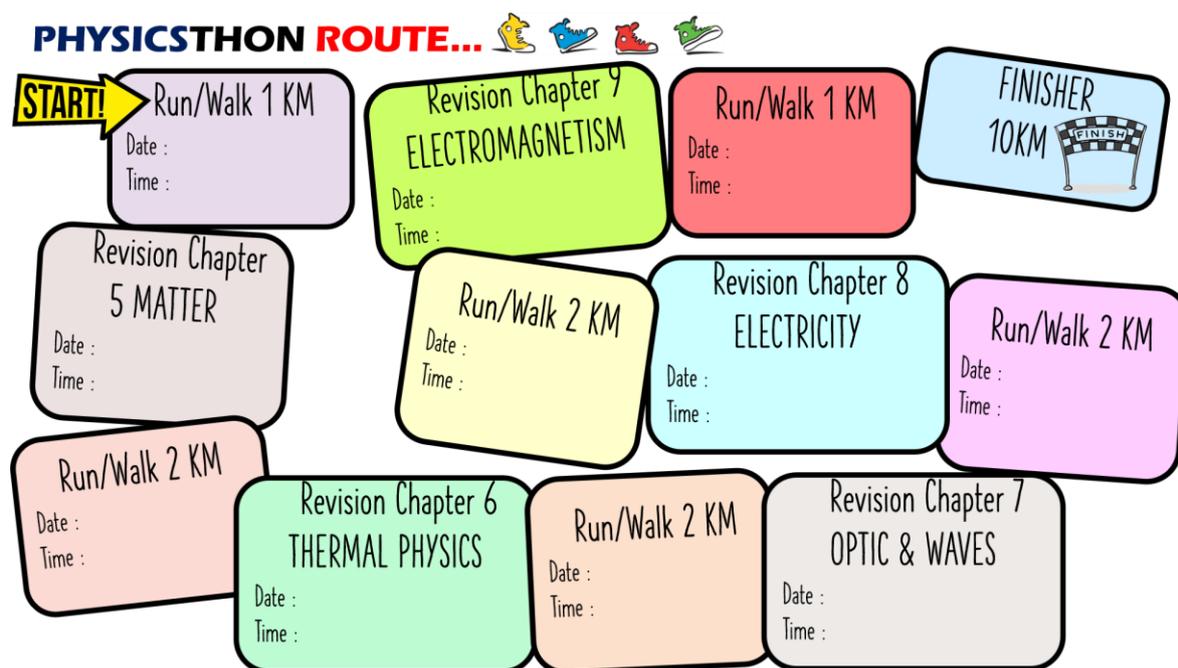


Figure 2b : Physicsthon e-template

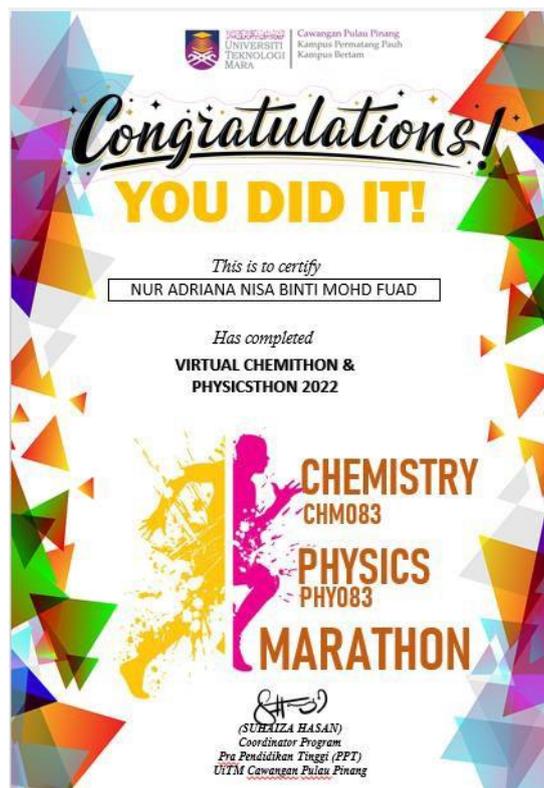


Figure 3: e-certificate sample

4. CONCLUSION

The use of Chemithon and Physicsthon as a new revision method is hoped to better help the student do their revision and increase their performance in chemistry and physics subjects. This method should provide benefits and act as a trendsetter for a new way of revision learning that provides a balance between academic and physical health.

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