CHEMISTREE: AN AUGMENTED REALITY APPROACH IN LEARNING CHEMISTRY

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Abstract

Conventionally, chemistry concepts and theory were thought either in the classroom (face to face) or online teaching through various platform. ChemisTree is an innovative approach to enhance students' engagement with chemistry concepts by providing virtual notes using Blippar application. Therefore, this article highlights on the innovative and creative approach to enhance student engagement in learning chemistry.

Keywords: Chemistry, Virtual Notes, Chemistree, Blippar, Students' Engagement.

1. INTRODUCTION

Chemistry is one of the subjects that seen by many learners as a complex and difficult subject to learn either in schools or in higher institution. Conventionally, chemistry concept was thought via cotemporary ways via lecture, tutorial and laboratory practice. Students were given printed notes and manual for the lecture and laboratory. A combination of learning techniques using online platform and application of augmented reality application is purposed to enhance student's engagement with chemistry subjects either inside or outside the classroom. This is aligned with what Gen Z students do best which is technology reliant, learn by doing, enjoy interactive classrooms instead of dissemination teaching method and expect that learning can take place anytime and anywhere (Kozinsky, 2017).

2. MATERIALS AND METHODS

Education is a practice of artistic action where learning process of learning is considered as design and knowledge is consider as a color (Duke, 1990). Education system nowadays have been influenced by the development of many new technology which is seen from the emergence of various media-based learning used in teaching and learning processes. The usage of many free media-based learning system in teaching and learning nowadays is capable to assist student to explore and have better understanding of the subject matter. The main challenge in teaching and learning is how to attract student interest to the subject matter in order to gain students involvement throughout the teaching and learning process.

Based on the conservative methods applied in chemistry lectures, learners had difficulty in visualizing and applying knowledge practically. Hence, in order to sustain the learning process of this course some enhancement is required. In this paper, it is proposed to incorporate virtual objects when blended with real world. It is aimed to amalgamate entertainment and study by providing immersive learning experience to

learners. The expectation with this enhancement is to impart a great deal of knowledge and better learning outcomes for chemistry subjects.

ChemisTree is one of the teachings and learning approach using augmented reality application to enhance student's engagement in learning chemistry at anytime and anywhere. This innovation is using Blippar application in producing virtual notes to the students. The initial idea of this innovation is to give students easy access to chemistry notes which contain videos, lecture notes and examples (Q&A) related to the topic for better understanding. The better visualization of the content keeps learners active during the learning process as it enhances human ability to understand and process information (Serio et. al., 2013). ChemisTree will have branches that will represent each topic or sub topics for certain chapters. The design of ChemisTree is depending on the chapter or topics that need to be highlighted. Figure 1 shown one of the examples of ChemisTree.

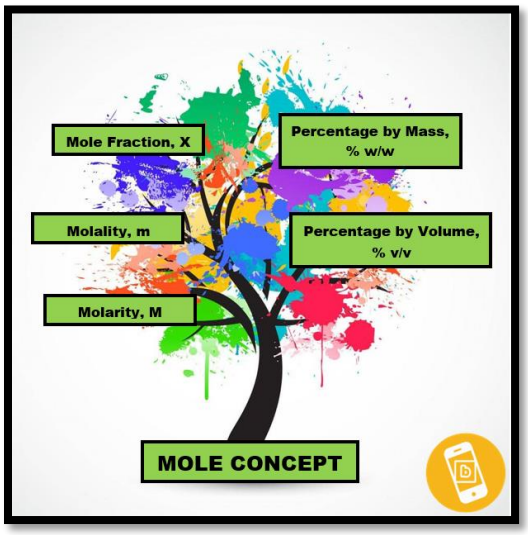

Figure 1. ChemisTree

2.1. Product Development Process

The development of ChemisTree consist of a few steps as shown in figure 2:

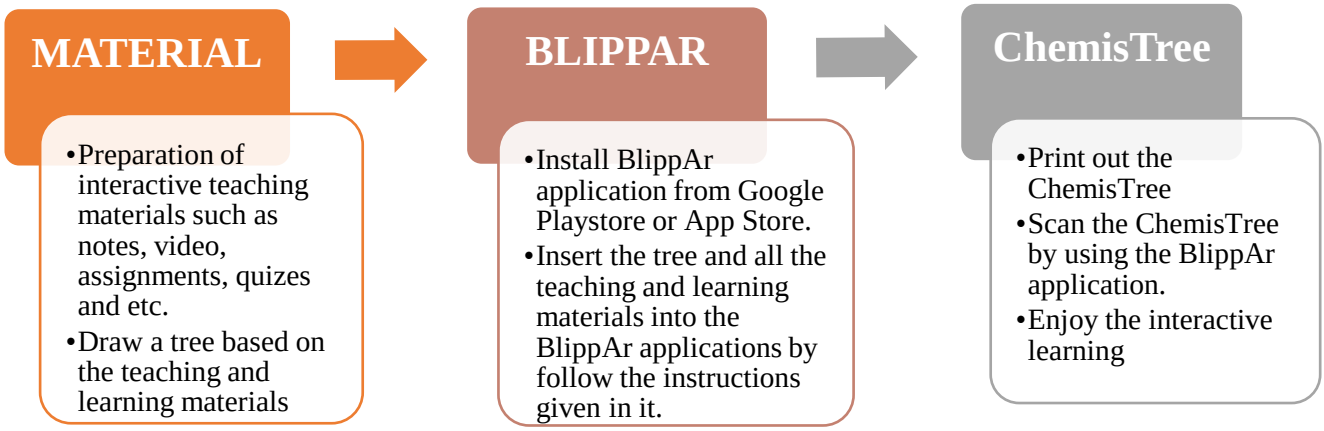

Figure 2. Development of ChemisTree

3. RESULTS AND DISCUSSION

ChemisTree is using AR and multimedia element to increase the motivation of student in order to learn chemistry. These elements may capture learners' interest and attention to continue learning. In other words, ChemisTree can be used as a knowledge card. By download Blippar application in their mobile phone, students just need to scan the topic on the ChemisTree that they required further information (Figure 3).

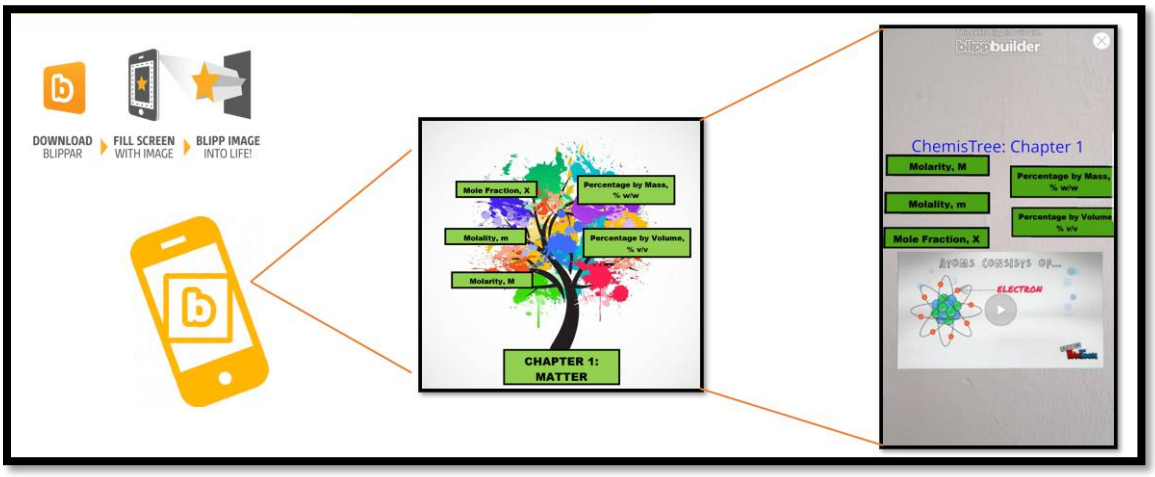

Figure 3. Application of ChemisTree

4. CONCLUSION

By using ChemisTree, students do not have to carry heavy paper notes in campus or even returning to their respective homes. It is hope that this innovation will enhance students' understanding to chemistry theories especially during their self-learning hours that can take place anywhere, anytime and everywhere. Besides that, ChemisTree will be one of the products that has potential to commercialize in all education sectors from primary until to the highest-level education and it also can be used for private tuition or personal teaching by parents at home.

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