Chapter 37

QS-SMARTedu: An Innovative Approach in Diversifying Student Learning Style

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ABSTRACT
Higher education institution are faced new challenges in the new century. In this new situation students are the clients and lecturers are the service providers. Hence, the latter must meet the ever-growing demands of the clients by adjusting the learning environment. There are many courses offered by the university which involved difference nature of learning activities. For instance built environment programme. This program requires high visualization skills in learning styles to enhance student understanding. This needs to be accomplished by translating the theory into 3-dimensional forms to relate the real situation aligned with the construction industry. However, one of the mistakes made by lecturers at higher education institution is failing to recognise the different learning style of students. As a result, lecturers and learning activities are often conducted in a manner that thus not match or suit the student's needs. Therefore, this QS-SMARTedu was developed to enhance level of understanding among built environment students through effective learning style. QS-SMARTedu was developed a module based on video animation using Augmented Reality that involved 83 final year students of quantity surveying programme. The innovation find out that QS-SMARTedu was effective in enhancing student's academic performance in university. In addition, it can improve teaching quality and learning environment among new generation university’s students.

Key Words: Learning Style, Innovative Approach, Student Performance, Visualisation.

1. INTRODUCTION

The role of the university changes with time, where the universities have to meet high
expectation from a large number of stakeholders, especially from government (as the financier of universities in most countries), industries and student themselves. The need in improving the delivery methods and classroom instruction is never-ending. In order to foster a high-quality teaching and learning, actions need to be taken to overcome the problem of unproductive delivery methods by faculty and low performance by undergraduates (Amir et al., 2011). Most educators agreed that high-quality teaching contributes to high-quality learning. In order to help students to learn effectively, lecturers need to know and adapt to different styles of learning (Grasha, 1996). She also suggests that if lecturers wish to help students learn, they should teach in a way that matches their students’ learning style.

There are several learning styles that every student has, such as visual learners, hearing learners and kinesthetic students. Each student has different learning styles depending on the specific characteristics. The characteristics of students categorized as visual learners are that they often need to look at the information. For example by reading, and by watching movies, videos, and demonstrations. The strength of this visual learner is that these individuals have strong visualization skills and are able to remember objects, shapes, and images. Unlike hearing students where they need to hear information without any pictures or help with any diagrams. They have “good ears” and can hear differences in tone and rhythm. One of the approaches is to read something aloud and this will help the individual remember the topic especially in the classroom. The third category of learning style is kinesthetic students. It can also be called as hands-on student. Most of these students are physically active and do things. The different learning styles among the university students have made the educational system in higher learning institution more challenging. Therefore, teaching and learning techniques must be aligned according to the most preference student learning styles for improving student performance.

Previous literature shows that learning style, like most psychological terms, has been used in different ways (Woolfolk, 2010). As a result, learning style varies in definitions, models and the instruments whereby it is measured. Generally, students have individual learning style preferences including visual (learning from graphs, charts, and flow diagrams), auditory (learning from speech), read-write (learning from reading and writing), and kinesthetic (learning from touch, hearing, smell, taste, and sight) (Erica et al., 2006).

The quality of physiology undergraduate education is vitally important for students in preparing for a career. Employers presume that university graduates have a certain set of knowledge and skills that will serve them well in their career (Carroll, 2015). In addition, during students’ training, employers presume that students have learned material in prerequisite courses and will carry this information with them during their practical session. Therefore, there is a strong need to improve learning and retention during undergraduate education to ensure that students are prepared to handle the challenges that they will face after graduation. As lecturers, we need to find ways to improve levels of education to improve students’ learning.

One way to improve student motivation and performance is to adapt teaching
approaches to meet the different learning style preferences of our students (Miller, 2001). Learning style preferences are the manner in which, and the conditions under which, learners most efficiently and effectively perceive, process, store, and recall what they are attempting to learn (James, 1995). Knowing the students’ learning style preferences will aide in the development of the most effective teaching approaches (Tanner, 2004).

Figure 1: Students’ Learning Style Preferences

Figure 1 shows the details of students’ learning style preferences in Quantity Surveying (QS) Programme. It shows that QS students have different learning preferences. The majority of QS students preferred visual learning style (49.99%) compared to other learning styles. While most of the students voted that auditory is the unpreferred learning style (6.02%) applied for subjects’ lesson in the classroom. This showed that auditory is the best learning style preferences that can be applied by the lecturers in improving teaching and learning among university students. Learning is more meaningful when lecturers and administrators understand the students’ thinking and their most effective learning style that should be implemented in the classroom.

2. THE OBJECTIVE OF THE STUDY

The study aims to develop an effective platform to enhance level of understanding and student performance among built environment students through effective learning approach.
3. DEVELOPMENT OF QS-SMARTedu

The development of the QS-SMARTedu is based on the results of the preliminary survey via a questionnaire which to determine the students learning style issues among University's student. The process of gathering the data were previously mentioned in the methodology section. The uniqueness and novelty of the QS-SMARTedu were explained in the following sections a-d.

3.1 Product Description
QS-SMARTedu has been developed as a platform for diversifying learning styles among University students in Malaysia. This is because there is a difference in learning styles among students. Therefore, this product aims to enhance students understanding of class learning topics. This product is very useful and benefited in providing solutions to students especially to the poor students throughout the learning process. In addition, this product also can improve teaching and learning quality among the University’s lecturers and students.

3.2 Benefits to Society
The QS-SMARTedu will be valuable to the students and lecturers who are involved in teaching and learning in public and private universities in Malaysia. For the lecturers, it can improve the quality of teaching techniques to provide more attractive learning process. It is different for students, where QS-SMARTedu can enhance a student's academic performance. By applying this QS-SMARTedu, it will help to university to maintain the quality of teaching among lecturers and learning among students aligned with the new global era with appropriate pedagogy adoption.

3.3 Novelty and Uniqueness
The developed QS-SMARTedu provides a more holistic teaching and learning approach. It is developed and established through comprehensive strategies with participation of the lecturers and students. This QS-SMARTedu was developed and tested in regards through various instruments such as academic theories and through questionnaire survey. The concept of QS-SMARTedu can also be applied to many programs and courses where visualization skill is an important element in the student’s learning style. This QS-SMARTedu product also was developed into a user friendly mechanism where the module was based on video animation using Augmented Reality in order to enhance the usability and practicality of the products. Finally, the novelty of QS-SMARTedu is served as continuing teaching and learning for improving the student’s academic performance.

3.4 Potential Commercialization
QS-SMARTedu can be applied by all student especially within built environment background. The effective an interactive module incorporated in the QS-SMARTedu can significantly provide added value to the university students in enhancing level of
academic performance. It also potential to extent it application (generalization) which can be executed for any faculties that use similar learning style.

4. CONCLUSION

The development of QS-SMARTedu anticipates to provide good challenge in resolving the current issues on the teaching and learning quality in Malaysian university. Technically, this product has gone through an empirically testing via quaestionnaire and hands on method in providing a holistic approach in teaching and learning process. This product provides benefits and value added to the university lecturers and students to ensure the quality of academic performance is at the higher level.

REFERENCES


