Architectural History Education: Students’ Perception on Mobile Augmented Reality Learning Experience

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Teaching and learning method has been used to teach architectural history to students, via lectures in a **formal classroom setting**. In **architectural history classes**, the usage of **videos** and **PowerPoints** are very common for presentations, which give students pictorial evidence of the topic under discussion.
Introduction

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- Negative side

Type of learning environment causes students to become **passive learners**
Introduction

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- **Negative side**
  Type of learning environment causes students to become **passive learners**

- **New technology’s adoption**
  **Mobile Augmented Reality (MAR) technology** could be a welcoming revolution, which could assist students in improving their **learning effectiveness**
To what extent **MAR** usage could benefit students to learn **architectural history** more **effectively**, as compared to using the **traditional teaching and learning** method?
To explore the usage of MAR application as a new innovative method for students to learn architectural history \textit{actively} and \textit{efficiently}. 
To investigate MAR current practice on architectural history education and to evaluate students’ perception of MAR in assisting their learning experience.
AR has drawn a public attention with its ability to allow learners to visualise complex 3 Dimensional objects at a very fast rate.

Educational technology in architectural history education

- M-learning, has become an efficient platform for students to have innovative technical assistance to enhance their learning process with low cost and affordable mobile devices.
Students learning experience via mobile learning

Conventional learning method of sitting in classrooms passively transformed to M-Learning, where students actively engage in the learning process.

- According to Farley, the majority of the students acknowledge the usage of savvy smartphones technology device in their day-to-day learning.

- The usage of M-learning as a tool could enhance understanding and knowledge based skills required by both students and instructors in architectural history education.
Students' technology acceptance on mobile learning

- **M-learning** in the educational sector has **facilitated teaching and learning** for both instructors and students.

- **M-learning devices**, either a **smartphone** or a **tablet**, are seen as promising pedagogical technologies and could be adopted easily in any **higher learning institution**.

- **MAR learning technology** would equip the students with the tool of reflection, and **learning contents** that they have developed could serve as a **database for students** to refer.
Mobile Augmented Reality (MAR) potential

- Pérez-López accounts that **MAR is such a powerful tool** that it can bring another dimension to senses, such as touching, hearing and **locating computer generated information**.

- Students who use AR technology will have an **in-depth understanding** of a topic especially in the **teaching of historical buildings** and sites where they can **navigate through** and see themselves.

- **MAR technology** application has been more **practical, user-friendly** and **adaptive** in this century’s **architectural learning method**.
Research strategies

Mixed methods approaches

- **content analysis**: conducted through workshops
- **Survey questionnaire**: conducted to produce an empirical outcome of the study quantitatively
USIM students experiencing with AR markers  

IIUM students during AR simulation workshop
Data analysis

The data analysis divide in two parts:

1. **Graphical data analysis**
   - pleasure in learning,
   - active learning,
   - comprehension and
   - cognitive learning acquisition.

2. **Pearson Correlation data analysis**

The percentage of students who are familiar with MAR in USIM and IIUM
The students’ perceptions on the conventional method of learning architectural history in four perspectives.

The students' perceptions of learning architectural history using MAR as a tool for technology enhanced learning, in four perspectives.

The students' perceptions of learning architectural history with MAR.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Familiar with MAR</th>
<th>Level of Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students gain cognitive knowledge</td>
<td>-0.053</td>
<td>0.092</td>
</tr>
<tr>
<td>conventional method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students gain cognitive knowledge</td>
<td>-0.045</td>
<td>0.078</td>
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<tr>
<td>conventional method with MAR</td>
<td></td>
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Pearson Correlation Test with students’ familiarity towards MAR and level of education (LoE)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Comprehensive</th>
<th>Gain Cognitive Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students pleasure in learning</td>
<td>0.817</td>
<td>0.686</td>
</tr>
<tr>
<td>through conventional method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>conventional method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students pleasure in learning with MAR</td>
<td>0.915</td>
<td>0.869</td>
</tr>
</tbody>
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Pearson Correlation Test with students on Comprehensive and Gain Cognitive Knowledge
Discussion and suggestions

This study highlights the importance of MAR in architectural history education. The conventional (the traditional method) and the TEAL method of teaching architectural history were analyzed in four (4) perspectives:

1. Pleasure in learning,
2. Active learning,
3. Comprehension

TEAL could be adopted as teaching pedagogy for this course.

The finding proved that MAR could improve students’ understanding of the history of architecture.
Conclusion

• **MAR usage in the architectural history education** has proved to be a **tool of importance**.

• **MAR applications** need some **improvement**, especially in the **marker tracking**.

• A lot of **sensitization** and **teaching programs** involving workshops are required to **popularise the technology** as a **universal teaching tool** and to remove students’ technological barrier.
References:


video

https://www.youtube.com/watch?v=dsq9jPJ1RYg
End.

Thank you!