History of Architecture and Introduction

Throughout human history, architecture has been perhaps the clearest symbol of a people group’s culture, traditions, and beliefs. The five branches of architecture are civil, sacred, naval, military, and landscape. What can be learned about a nation can be clearly observed in the styles, methods, sizes, and symbols used when constructing various buildings and structures. Prime examples include the Egyptian Pyramids, the Roman Colosseum, Jewish temples, ancient ruins, Muslim Mosques, European Cathedrals, the Eiffel Tower, Mount Rushmore, and numerous others. Each structure is directly connected to and is a symbol of the cultural traditions and beliefs of that people group. It should also be noted that of the evidence a nation leaves behind for its existence, buildings are the most enduring.

Studying the history of architecture not only allows us to gain more understanding of that people group, but also allows us to improve current methods for constructing buildings by observing what has succeeded and what has failed in the past. Primarily the most beneficial reason for studying the history of architecture is to improve our own understanding, knowledge, and competency in order to design safer, new, efficient, and more enduring buildings for tomorrow. Which begs the question: if it is crucially important to constantly improve the way in which the buildings of tomorrow are designed and constructed, shouldn’t it be as equally important to improve the way in which the designers of tomorrow are taught? If we want a brighter future in architecture, it begins by investing in the architects of tomorrow. This requires a new, interactive, and engaging approach to the education of aspiring architects.

The problem is that students today are learning how to design three dimensional objects using two dimensional methods. PowerPoints, computer screens, models, and yesterday’s software all make up the primary curriculum of teaching and understanding architecture. But what if this were not the case? What if aspiring architects could visually study and interact with the structures they’re learning about in a three dimensional world? The use of Virtual Reality in studying and understanding architecture is exactly the method needed to enhance the architectural curriculum.

The Project

This project focused on the use of Virtual Reality in order to enhance the architectural learning experience. For my research, I captured a number of three dimensional images of buildings that exemplify European architecture practices not commonly found in the United States while studying abroad in Copenhagen, Denmark. My plan was to develop Virtual Reality visualizations from my three dimensional images using the iLab software tools in order to create interactive environments that display European structures. Unfortunately, the iLab software required for developing these visualizations was unavailable for my use upon return. Having to
adapt to this change, I decided to inquire several architecture students about their thoughts on the use of Virtual Reality in the architectural curriculum. Along with gathering their thoughts, I also showed them the three dimensional images taken during my time in Europe and gathered their feedback. Using a Theta 360 camera I was able to capture the following four images:

**Camera vs. Virtual Reality Images**
Example 1:
Building: Grundtvigs Church (1921-1940)
Location: Copenhagen, Denmark
Architect: Peder Vilhelm Jensen-Klint
Example 2:
Location: Malmo, Sweden
Architect: Santiago Calatrava

![Front Facade](image1)
![Exterior](image2)

Example 3:
Building: Kulturværftet (2010)
Location: Helsingør, Denmark
Architect: AART Architects

![Front Facade](image3)
![Interior](image4)
Example 4:
Building: Dancing House (1994)
Location: Prague, Czech Republic
Architect: Frank Gehry

Front Facade

Interior
(Virtual Reality Image)
**Results**

After interviewing several architecture students, their responses were all very similar. They all agreed that throughout their undergraduate degree, two dimensional images were decreasing their overall learning experiences. They have noticed that the best way they learned about architecture was to physically go to the buildings themselves. Considering they all live in the Midwestern area of the United States, they are pretty limited to the buildings they can physically go to. This is where they found my virtual reality images helpful.

Through the virtual reality images, the students from my trial claimed they were able to gain a better human perspective to the buildings that helped them configure a size ratio. They also mentioned their ability to capture the curvature of the buildings and their unique details more clearly through the virtual reality images.

**Conclusion**

At the end of my research it was safe to say that all my results lead to the same conclusion; virtual reality can increasingly enhance the learning experience of an architecture student. Everyone who was interviewed was greatly impressed with the quality of the images and how much knowledge they could gain from just one image. Through these series of images they were able to understand the building, how it interacted with the environment, and how it was culturally significant. They’re excited to work with virtual reality technology more and to experience buildings from all of the world right here in the Midwest.

**Learning Experience**

Having the opportunity to conduct this research project has been a great educational experience for me. Through P.U.R.E. I was able to conduct my own research, consult with professors, and collect data analysis from my classmates. I’m passionate about architecture and I am always looking for more ways to enhance the field with new technological approaches. I have enjoyed being a part of Human Environmental Sciences Architectural Studies program and am grateful to have the resources and mentorship of my professors through this process. After graduation I’m looking forward to seeing how the department continually uses the new technology and incorporating it into the curriculum for their students.