IMMERSED IN A VIRTUAL WORLD;
VISUALIZATION LABORATORY SUPPORTING DESIGN

Daina Fisher Gewirzman
Faculty of Architecture & Town Planning
Technion - IIT
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Content:

- Background and Introduction to the advantages of a visualization laboratory enabling immersion in the virtual world as an effective tool in support of design.
- Introducing our VisLab
- Introducing the hybrid design process integrating the “traditional studio” with the VisLab as a working environment.
- Students response
- VisLab as a research environment supporting design.
- Intermediate conclusions
- Suggested planning and design process using a visualization lab.
Learning in technology–rich settings is becoming general practice (Kufman, Schmalstieg and Wagner, 2000).

It is envisaged that a combination of real and virtual media will open new perspectives for teaching and learning design (Chen and Wang, 2008).

Virtual Reality can be used to assess cultural ecosystems services based on aesthetic evaluation on scenery in a controlled and accessible environment. This can help planners and stakeholders make decisions through increased awareness of ecosystem services changes (Tengberg et. al. 2012).
Background

Tools supporting immersive experience:

VR motion systems  Oculus Rift  Kinect powers virtual reality experience for Disney’s Planes
Tools supporting visualization:

Augmented reality

Hybrid Ideation Space - collaboration

Cave

Mercury Active company

With thanks to Prof. Tomas Dorta, Montreal University
Tools supporting visualization:

Evaluation of the designs in VR environment

Schneider, Kuliga, Holscher, Conroy-Dalton, Kunert, Kulik and Donath, 2013
"Educating architecture students to design buildings from inside out”
Experiences for research-based design studio. Bauhaus university in Weimar.
Our VisLab can host up to 20 people simultaneously for a 3-D experience. One participant, followed with tracking cameras, can “move” through the image or manipulate a 3-D object on the screen.
Integrated into the design studio – a “Hybrid studio”

- Adaptive reuse design studio: exploring the potential of the existing space’s geometry.
- Considering design alternatives in a new explorative way.
- Digging down to a new level of detailing.
- Learning from Architecture precedents: Walking through the “before” and “after”.
- A new design interface (for students).
- A new review interface (for teachers).
- A new way of communication to elucidate the impact of the design on the user.

The design on the user.
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Integrated into the design studio

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A new design interface (for students..... And practitioners)
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A new way of communication to elucidate the impact of the design on the user.

Integrated into the design studio
• Students response at the end of the semester:

**Satisfied!**

*Integrated into the design studio*

- Enabling **perception** of space
- Experiencing the **virtual space**
- Helps to Reveal **the hidden attributes** and **potential** of space and structure
- **greater clarity**
- **A great tool supporting design!!!**

- Supporting the **extent of detailing**
- A strong **visualization tool**!
- **Better interaction and understanding**
- **Higher quality design**

- **Practice** the system for **efficient use**

A need to **Practice** the system for **efficient use**
VisLab as a research environment

- Assessing ecological, aesthetic and touristic value of open and forested landscapes
- Studying the comparative impact of a view on the perceived density.
- Studying the impact of alternative interior arrangements on the perceived density and visual privacy.
- Exploring the impact of attractors locations on loitering through the city street network.
VisLab as a research environment

• Assessing ecological, aesthetic and touristic value of open and forested landscapes

• Studying the comparative impact of a view in a much more realistic interface.

• Studying the impact of alternative interior arrangements on the perceived density and visual privacy.

• Exploring the impact of attractors locations on loitering through the environment.
VisLab as a research environment

- Studying the comparative impact of a view on the perceived density.
- Studying the impact of alternative interior arrangements on the perceived density and visual privacy.
- Exploring the impact of attractors locations in the city.
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Serving as a research environment

• Assessing ecological, aesthetic and touristic value of open and forested landscapes

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• Studying the impact of alternative interior arrangements on the perceived density and visual privacy

• Exploring the impact of attractors locations while loitering through the city street network.
Intermediate conclusion:

- Architecture struggles with integrating the 3D urban scale with smaller scales (e.g., building and interior scale) in the immersive virtual reality environment.

The theatre or laboratory setting has advantages for collaboration and immersive and/or interactive designing and it is gaining ground in architecture design education.

The participatory domain available in the virtual reality laboratories and its broad possibilities offer landscape and architectural design researchers and practitioners the greatest advantages.
Intermediate conclusion:

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Intermediate conclusion:

Environmental planning focuses on aspects of the participatory process

• Real-time interactive, walkthrough and immersion in the virtual scenes brings about an understanding of the virtual environment, such that can’t be achieved in commonly used tools.

• Such a representation and working environment may empower community stakeholders through the use of 3D visualization of urban development and architectural scenarios, thereby eliminating the gap between professional jargon and popular perceptions of development possibilities.

• Qualified use of virtual reality in the visualization lab creates a framework for testing the overall validity of proposed planning and architectural designs, generating new alternatives and conceptualizing learning, instruction and the design process itself.

• Such a representation tool and working environment is assumed to have significant consequences on the decision-making process.

Geodesign Summit Europe
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Intermediate conclusion:
A work flow describing the process of design using visualization systems and virtual reality laboratory (Portman et. al. 2014, based on Honjo and Lim 2001)
Thank you for your attention

I would like to Thank Mr. Doron Zur, Vislab Technical manager and Mr. Haim Singer, Photography Lab manager for their Assistance and contribution.

See you in the lab.....