



The Application of Virtual Reality in Faculty Development

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Immersion (virtual reality)

- Immersion into virtual reality (VR) is a perception of being physically present in a non-physical world.
- The perception is created by surrounding the user of the VR system in images, sound or other stimuli that provide an engrossing total environment.

Immersion

- The state of consciousness where a "visitor" or "immersant" 's awareness of physical self is transformed by being surrounded in an artificial environment
- used for describing partial or complete suspension of disbelief, enabling action or reaction to stimulations encountered in a virtual or artistic environment. The greater the suspension of disbelief, the greater the degree of presence achieved.

The WIZARD of OZ



Immersive virtual reality is a hypothetical future technology that exists today as [virtual reality](#) art projects, for the most part.

It consists of immersion in an [artificial](#) environment where the user feels just as immersed as they usually feel in [everyday life](#).

([Joseph Nechvatal](#), *Immersive Ideals / Critical Distances*. [LAP Lambert Academic Publishing](#). 2009, pp. 367-368)



A [Cave Automatic Virtual Environment](#) (CAVE) system

Immersive digital environments

An immersive digital environment is an artificial, interactive, computer-created scene or "world" within which a user can immerse themselves.





花博行動夢想館 In 2010

行動夢想館 13個月

慘虧 8500萬

議員痛批浪費公帑

嘉瑜議員高嘉

黨



夢想館三階段統計數據一覽表

項目	第一階段	第二階段	計總數
參觀人數	16萬5千	16萬1千	32萬6千
參加工作坊	10萬5千	10萬5千	21萬
參加講座	10萬5千	10萬5千	21萬
參加展覽	10萬5千	10萬5千	21萬
參加論壇	10萬5千	10萬5千	21萬
參加研討會	10萬5千	10萬5千	21萬
參加圓桌會議	10萬5千	10萬5千	21萬
參加小組討論	10萬5千	10萬5千	21萬
參加問卷調查	10萬5千	10萬5千	21萬
參加焦點小組	10萬5千	10萬5千	21萬
參加民意調查	10萬5千	10萬5千	21萬
參加諮詢會	10萬5千	10萬5千	21萬
參加公聽會	10萬5千	10萬5千	21萬
參加座談會	10萬5千	10萬5千	21萬
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高嘉瑜議員辦公室製表

Clinical Virtual Reality Classroom for CFD

In 2011

Using High Tech
to mimic the clinical
teaching environment





Design Idea

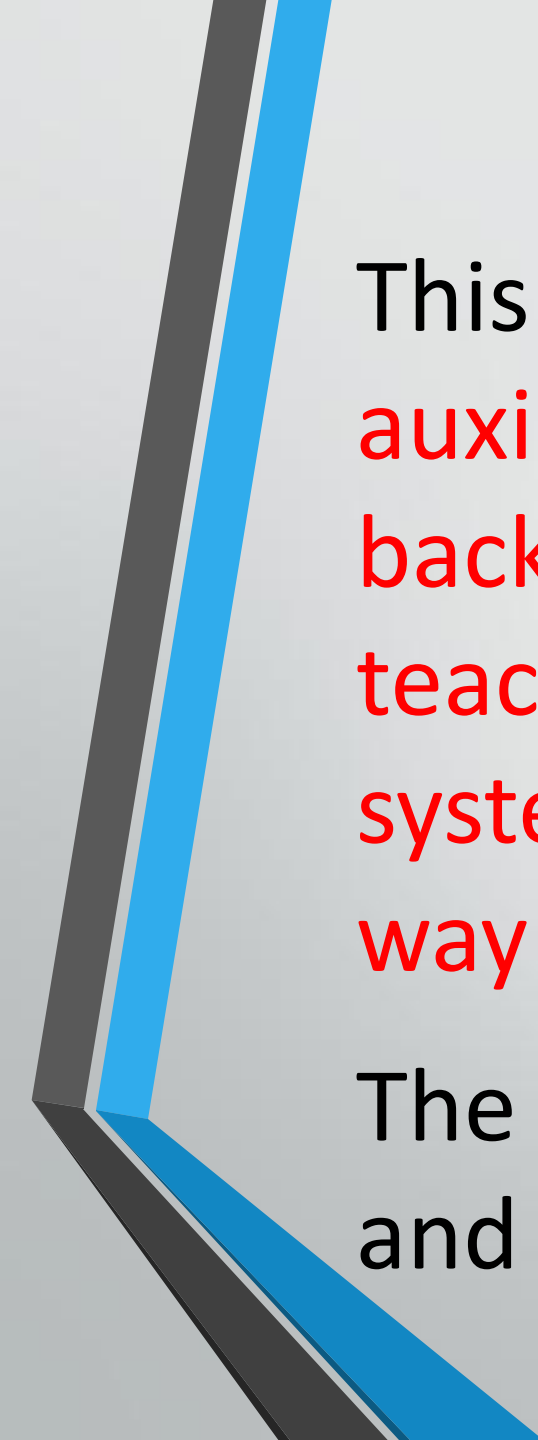
Space Design



Space for observation



Space for Demonstration & Practice With
an artificial, interactive,
computer-created scene

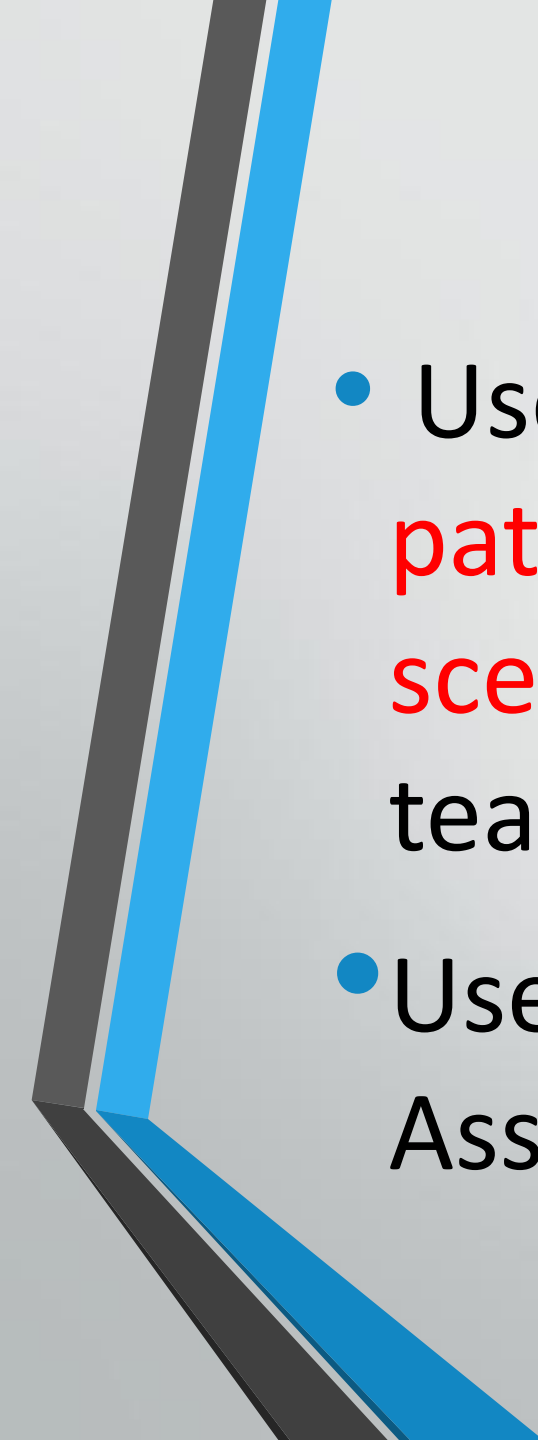


This classroom is equipped with **high-tech auxiliary equipment**, including a **circular screen background** that can be changed with **different teaching situations**, an **instant interactive system**, an **electronic whiteboard** and a **one-way mirror**.

The teachers can teach medical communication and other skills in this simulated situation.

The “clinical virtual reality” classroom. : divided by one-way mirror, equipped with a projector behind the screen. The classroom could simulate different clinical teaching scenes and allow skill practice without interference by observer or other trainee.



- 
- Use **standardized students, standardized patient** and well-designed written **case scenario** to facilitate the faculty how to teach in **Virtual Reality Classroom**
 - Used for training bedside Teaching, Assessment skill and Feedback skill

護理站



病房



急診室



開刀房



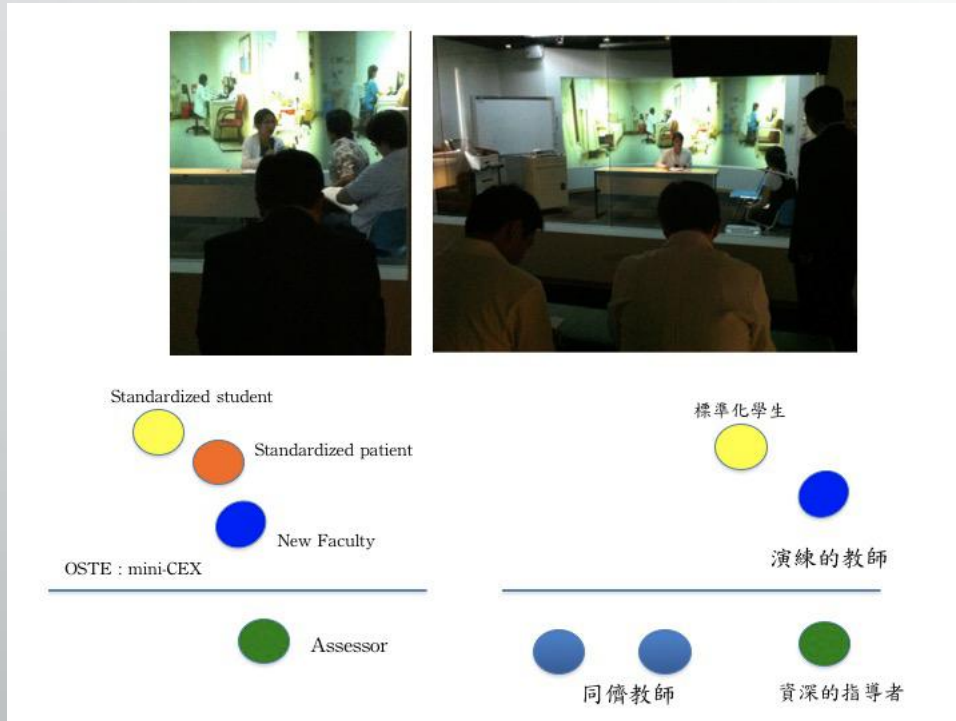
問診室



演講廳



360 degree Virtual Reality Classroom for Faculty Development



Create Complex Clinical Scenario which need inter-professional Collaboration to solve patient's problems.

Used for Microteaching in stead of Video Recording

Standardized Patients and Standardized Students at 360 Virtual Reality Classroom



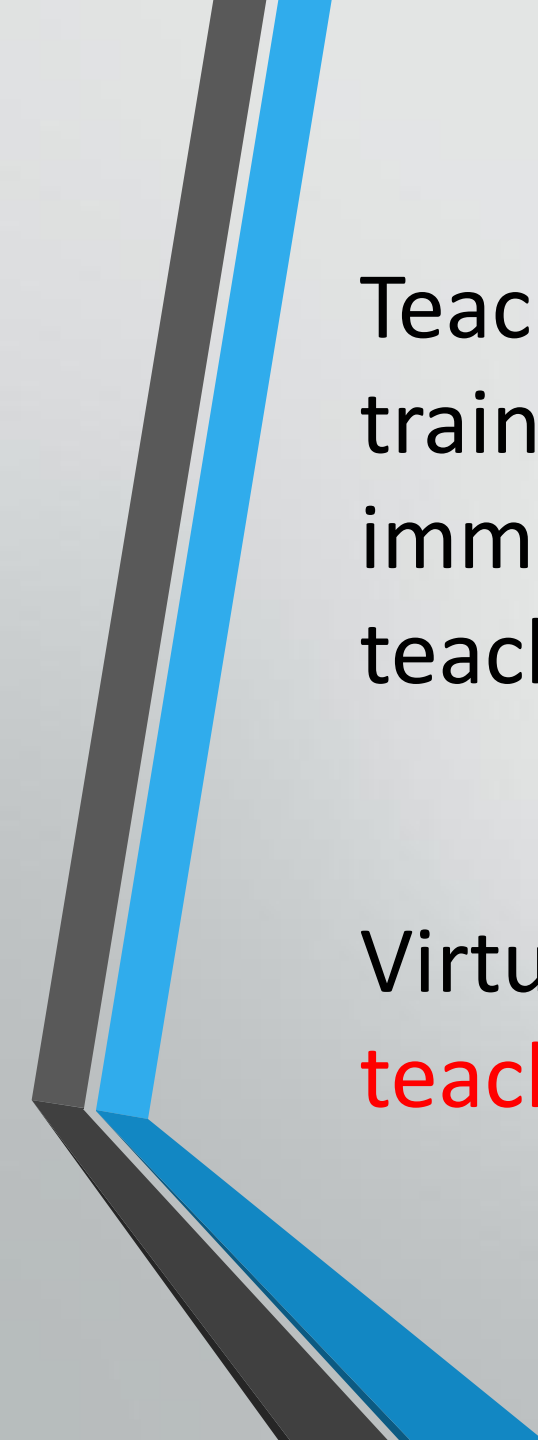
New Faculty Practice



Peers Observe and Give Feedback







Teachers can also use the **virtual lecture venue** to train **presenting or lecturing skills** and receive immediate feedback from peers to enhance the teacher's skills.

Virtual reality allows clinicians to experience the **teaching atmosphere** in a more **realistic environment**.

Training the Oral Presentation Skill



2012 Johns Hopkins University Professor Joanne Katz








2013
Duke University
Professor Edward Buckley





“TVGH have some very sophisticated training tools that have been implemented or are about to be started including some interesting simulations.”

**Apply in virtual environment-
based one minute preceptor
workshop for nursing faculty
training**



one-minute preceptor (OMP)

- The “one-minute preceptor” (OMP) model, first introduced in 1992 by University of Washington, is proved effective in medical clinical teaching and becomes an emerging hot strategy in clinical nursing teaching .
- We used virtual reality classroom to compare the effectiveness of two different OMP faculty training models (virtual-environmental based & Role-playing based).

Method

- All nursing preceptors assigned to be the clinical instructor of new PGY trainee in VGH-TPE during Aug to Nov. 2015 was invited to join this study.
- The preceptors was divided to 2 groups randomly: The novel virtual-environmental based training group for traditional role-playing based training group.
- Both groups join a 4 hour-long workshop for application of OMP to teaching, the 2 groups received one-hour lecture about OMP introduction, then receive different way to practice OMP skill.
- The novel virtual-environmental based OMP training group received micro-teaching based training in our new “clinical virtual reality” classroom. The preceptors practice OMP with simulated students in virtual environment followed by discussion.
- The role-play group divided into 4-5 smaller groups (3-4 preceptors each), create a teaching case and present it by role play.



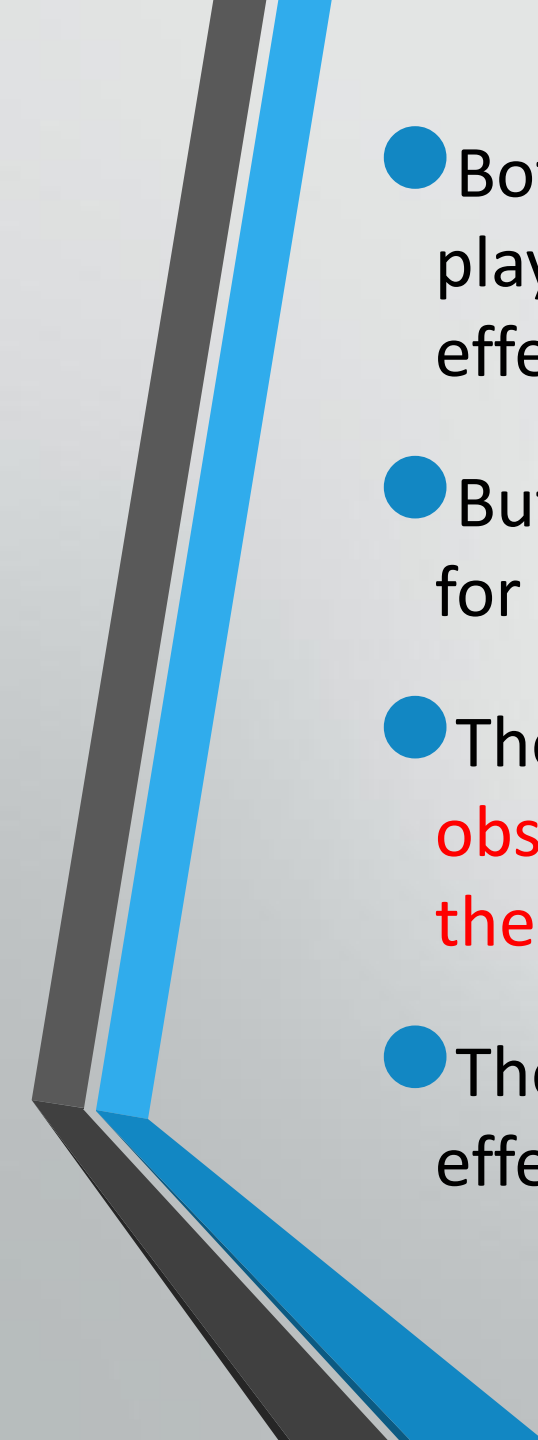
Evaluate the Effectiveness

We evaluated and compared the effectiveness between groups by :

- ① A series of 2-station objective structured teaching examination (OSTE) before, immediately after & one-month after the workshop
- ② Monthly preceptee's feedback for 3 consecutive months
- ③ Group dynamics questionnaire about the workshop.

Result

	Role-Play		Virtual Environment		p-Value
	N	Mean (STD)	N	Mean (STD)	
Workshop Satisfaction [5-25]	23	22.2 (2.6)	22	21.4 (2.4)	0.278
<u>Preceptee's evaluation [10-50]</u>					
Month 1	27	44.7 (5.9)	20	44.4 (4.6)	0.832
Month 2	26	45.0 (4.5)	20	44.4 (5.0)	0.694
Month 3	26	44.8 (4.7)	20	44.3 (4.0)	0.675
OSTE score 1 (hypoglycemia) [0-16]					
Pretest	23	5.2 (3.0)	22	5.1 (2.8)	0.911
Post-test 1	23	9.9 (3.1)	22	8.0 (2.8)	0.036*
Post-test 2	23	8.9 (3.4)	19	7.8 (3.2)	0.300
OSTE score 2 (IICP) [0-16]					
Pretest	23	4.2 (2.6)	22	4.3 (2.0)	0.962
Post-test 1	23	10.0 (1.6)	22	9.0 (2.4)	0.098
Post-test 2	23	9.3 (2.4)	22	8.4 (3.8)	0.305
Group Dynamic scores [10-100]					
Interpersonal learning [4,20]	19	88.8 (8.1)	16	84.1 (8.7)	
		18.5 (1.6)		17.4 (1.6)	0.044*
Self-presentation [2,10]		9.0 (1.0)		8.4 (1.0)	0.179
Interpersonal relationship [5,25]		21.9 (2.4)		20.0 (1.7)	0.007*
Engagement [5,25]		22.0 (2.4)		21.4 (1.9)	0.409
Avoiding/conflict [4,20]		17.4 (2.7)		16.9 (3.0)	0.530

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- Both microteaching combined with situation-simulation or role-playing based design are beneficial in OMP training. The effectiveness is similar when the total training time is same.
 - But our study failed to prove novel situation-simulation is better for skill training for OMP training.
 - The underlying reasons possibly include the **too much observation** and **less interactive time with other participants** or **the experience difference of workshop facilitators**.
 - The **group dynamic** may play an important role for the effectiveness of teaching skill training.

Suggestion

- Virtual Reality Classroom is effective in microteaching, especially for new faculty.
- But we have to pay more attention to the **feeling and the stress** of the inexperienced student-teachers in the process of being observed.

Never Letting UP

- Reinvigorate process with new ideas and team members
- Negotiating for increase resources
 - Grand support from government
 - More simulation scenario for microteaching (such as simulation for difficult teaching)
 - Identify new champions in senior faculty
 - Train more ore skillful facilitators for virtual reality-based training

臺北榮總

追求卓越、視病猶親



真知力行



仁心仁術



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