Virtual Worlds as learning spaces for health literacy (how do I get my avatar lots of health points)

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Topics

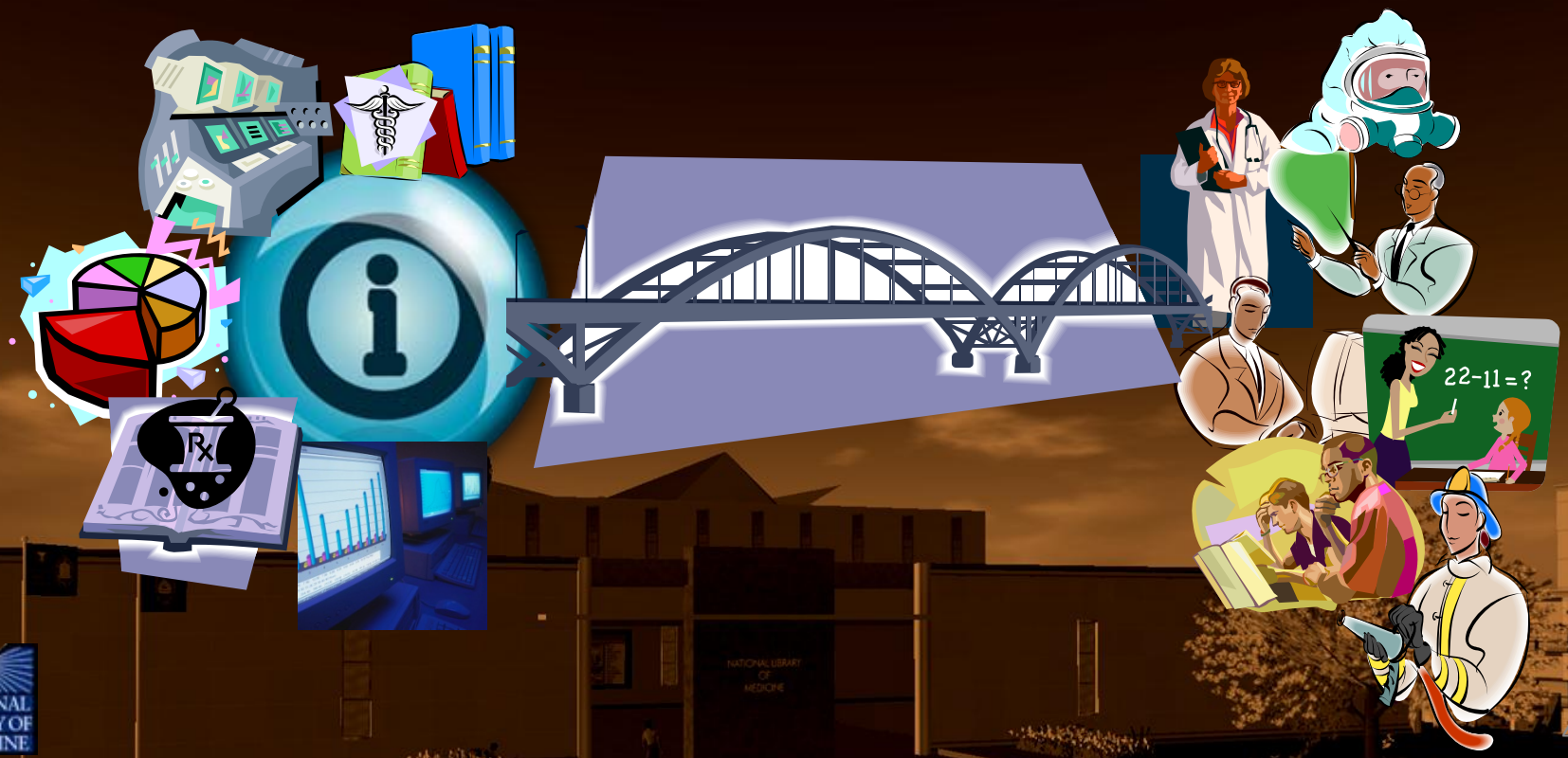
- My role at NLM
- Why is NLM interested in Virtual Worlds?
- What are we doing in virtual worlds?

My office

- NLM
  - SIS Division
    - DIMRC Office (http://disaster.nlm.nih.gov)

My role

- Use information technology to build bridges to reliable health information.



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How?

- Via a variety of projects:
  - International health information infrastructures.
  - Emergency communications systems.
  - Web 2.0 and social media.
  - Disaster information management.
  - Data visualization.
  - Geographical Information Systems.
  - Virtual world training and collaboration.
  - …

Our focus today

- Virtual Worlds and health information learning

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What Virtual Worlds?

- VW = Computer simulated environment in which its users can navigate via *avatars*.
- Many types…
- MUVE = Multi-User Virtual Environments → not necessarily game-specific
  - Those that allow user-generated content → can be used as application platforms

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Why Virtual Worlds?

Because of NLM's focus on

- Innovation
- Outreach
- Collaboration

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Why Virtual Worlds?

- VWs are increasingly popular
- Millions of people already have *avatars*
- For new generations "3-D" computer games are like second nature
- Technology is evolving and enabling more realistic, capable VWs
- A growing number of VW platforms allow user-content creation

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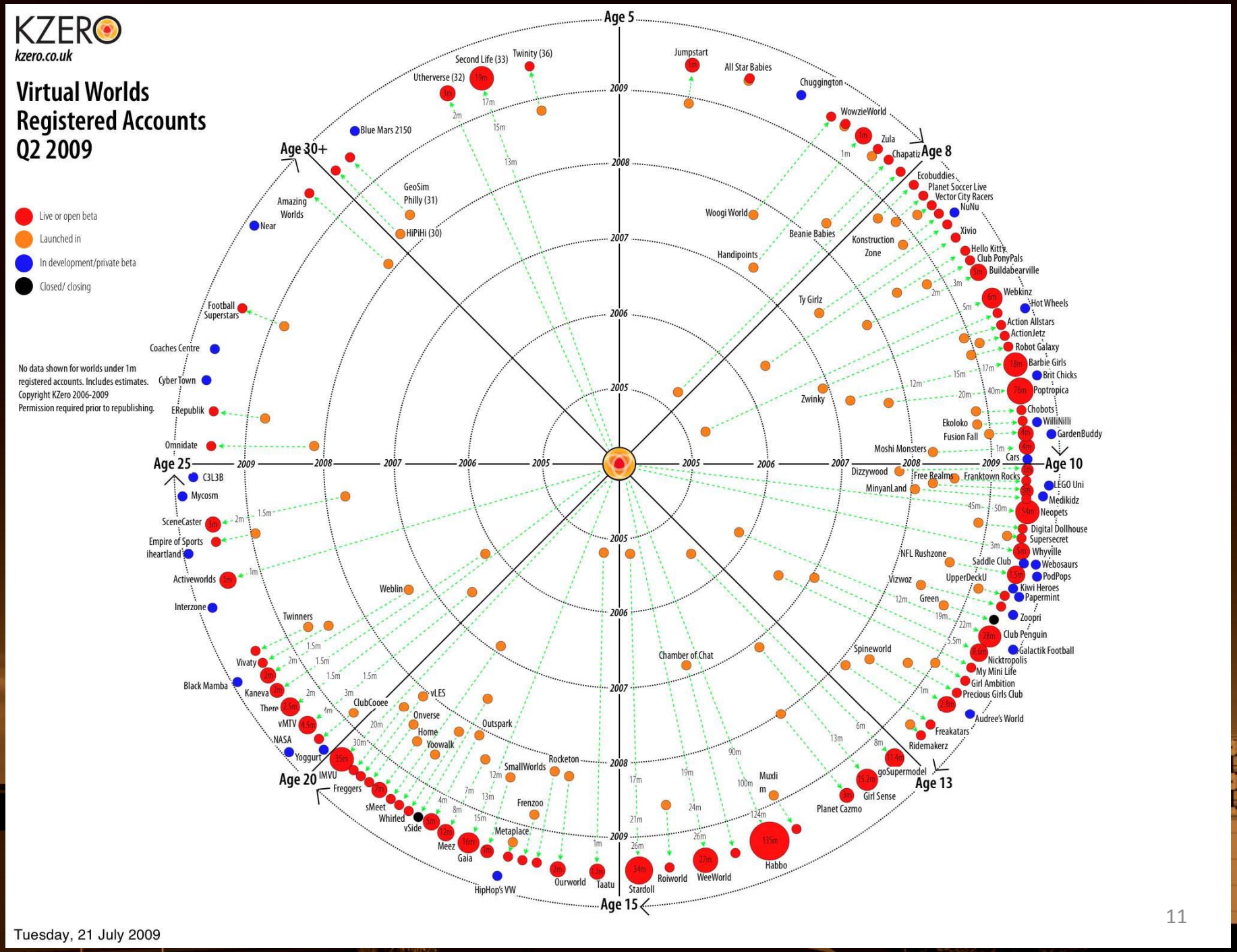
KZERO
kzero.co.uk
Virtual Worlds Registered Accounts Q2 2009
Live or open beta
Launched in
In development/private beta
Closed/ closing
No data shown for worlds under 1m registered accounts. Includes estimates.
Copyright KZero 2006-2009
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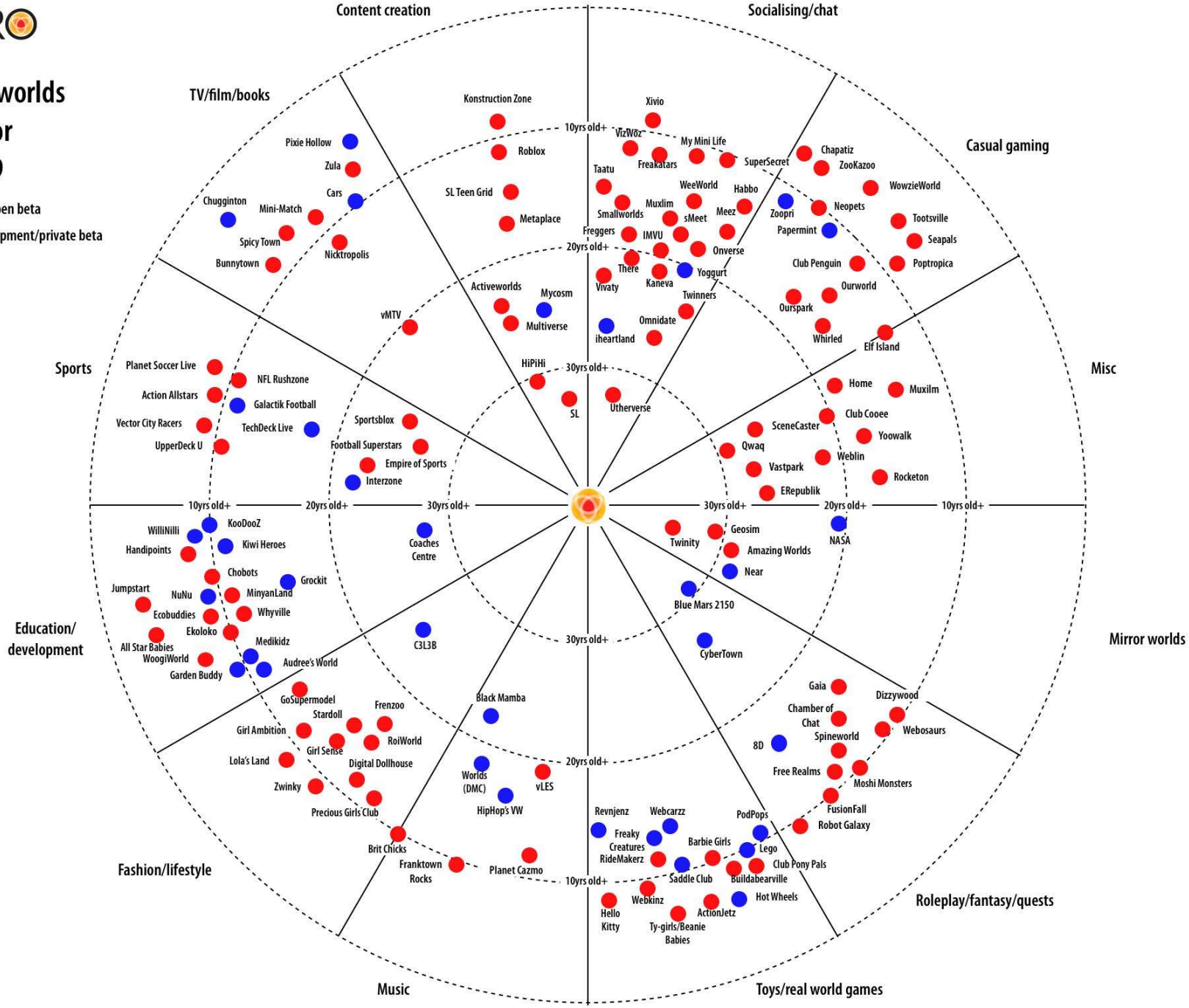
Age 5
Age 8
Age 10
Age 13
Age 15
Age 20
Age 25
Age 30+
2009
2008
2007
2006
2005
Second Life (33)
Twinity (36)
Utherverse (32)
Jumpstart
All Star Babies
Chuggington
WowzieWorld
Zula
Chapatiz
Blue Mars 2150
GeoSim
Philly (31)
HiPiHi (30)
Amazing Worlds
Near
Ecobuddies
Planet Soccer Live
Vector City Racers
NuNu
Xivio
Hello Kitty
Club PonyPals
Buildabearville
Woogi World
Beanie Babies
Konstruction Zone
Handipoints
Ty Girlz
Webkinz
Hot Wheels
Action Allstars
ActionJetz
Robot Galaxy
Barbie Girls
Brit Chicks
Poptropica
Zwinky
Chobots
WilliNilli
GardenBuddy
Ekoloko
Fusion Fall
Moshi Monsters
Cars
Dizzywood
Free Realms
Franktown Rocks
MinyanLand
LEGO Uni
Medikidz
Neopets
Digital Dollhouse
Supersecret
Whyville
Webosaurs
PodPops
Kiwi Heroes
Papermint
Zoopri
Club Penguin
Galactik Football
Nicktropolis
My Mini Life
Girl Ambition
Precious Girls Club
Audree's World
Freakatars
Ridemakerz
goSupermodel
Girl Sense
Planet Cazmo
Muxlim
Habbo
WeeWorld
Roiworld
Stardoll
Taatu
Ourworld
HipHop's VW
Metaplace
Gaia
Meez
vSide
Whirled
sMeet
Freggers
IMVU
Frenzoo
SmallWorlds
Rocketon
Outspark
Yoowalk
Home
Onverse
vLES
ClubCooee
Yoggurt
NASA
vMTV
There
Kaneva
Black Mamba
Vivaty
Twinners
Weblin
Interzone
Activeworlds
Empire of Sports
iheartland
SceneCaster
Mycosm
C3L3B
Omnidate
ERepublik
Cyber Town
Coaches Centre
Football Superstars
NFL Rushzone
Saddle Club
UpperDeckU
Vizwoz
Green
Spineworld
Chamber of Chat


KZERO
kzero.co.uk
Virtual worlds by sector Q2 2009
Live or open beta
In development/private beta
Content creation
Socialising/chat
Casual gaming
Misc
Mirror worlds
Roleplay/fantasy/quests
Toys/real world games
Music
Fashion/lifestyle
Education/ development
Sports
TV/film/books
10yrs old+
20yrs old+
30yrs old+
Pixie Hollow
Zula
Cars
Chugginton
Mini-Match
Spicy Town
Nicktropolis
Bunnytown
Konstruction Zone
Roblox
SL Teen Grid
Metaplace
Activeworlds
Mycosm
Multiverse
vMTV
HiPiHi
SL
Xivio
VizWoz
Freakatars
My Mini Life
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Precious Girls Club
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Brit Chicks
Franktown Rocks
Planet Cazmo
Gaia
Dizzywood
Chamber of Chat
Webosaurs
Spineworld
8D
Free Realms
Moshi Monsters
FusionFall
Robot Galaxy
Revnjenz
Webcarzz
PodPops
Freaky Creatures
Barbie Girls
Lego
RideMakerz
Club Pony Pals
Saddle Club
Buildabearville
Webkinz
Hot Wheels
Hello Kitty
ActionJetz
Ty-girls/Beanie Babies

Why Virtual Worlds?

- Many government, education, and research organizations are actively using and promoting VWs for science and education. For example:
  - *Simteach: University and Educational Institutions in SL* *http://www.simteach.com/wiki/index.php?title=Institutions_and_Organizations_in_SL#UNIVERSITIES.2C_COLLEGES_.26_SCHOOLS*
  - *William Sims Bainbridge, The Scientific Research Potential of Virtual Worlds*. *Science* 27 July 2007: Vol. 317. no. 5837, pp. 472 – 476
  - Virtual Worlds? "Outlook Good" (EDUCASE), Oct 2008 http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume43/VirtualWorldsOutlookGood/163161
  - Science places in SL https://sl-science-places.dabbledb.com/page/sl-science-places/vbxOGovy

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What are we doing in VWs?

- NLM is evaluating VWs for:
  - Outreach and Education
    - Special populations, enhanced visualization, enhanced interaction with information, etc.
  - Disaster Preparedness Training
    - Emergency/Disaster simulations, more "realistic" individual and group training, enhanced student engagement, etc.
  - Technical collaboration
    - VWs as enhanced meeting/collaboration platforms

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What are we doing in VWs?

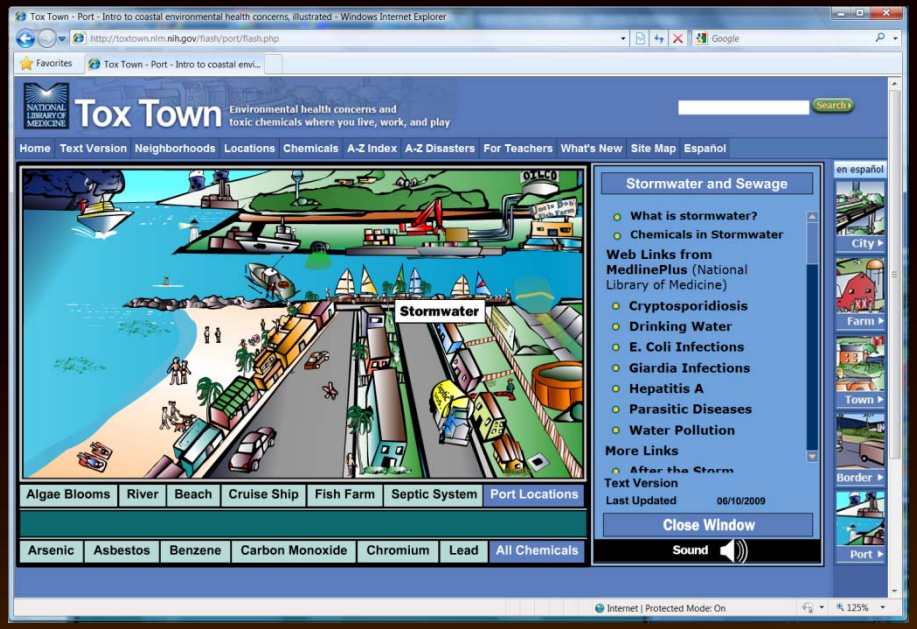
Current projects:

1. Tox Town in Second Life.
2. Emergency Response Training in Virtual Worlds.
3. Developing evaluation methods for “eGov” applications in Virtual Worlds.
4. Health information exhibits/events in SL.

What are we doing in VWs?

NLM Tox Town on the Web

Environmental health portal on the Web for the general public.



- It makes use of graphics, sounds and other multimedia to provide a highly interactive learning experience.
- Scenes: city, farm, town, US-Mexico border, and a port.

http://toxtown.nlm.nih.gov

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1. Tox Town in Second Life

- SL is a free-to-join MUVE
- SL is inhabited by millions of users
- "Virtual NLM island" is among a number of other science and education "islands" (Scilands).
- Tox Town "scenes" and environmental health info.
- Also interactive activities, exhibit areas and an auditorium.

1. Tox Town in Second Life

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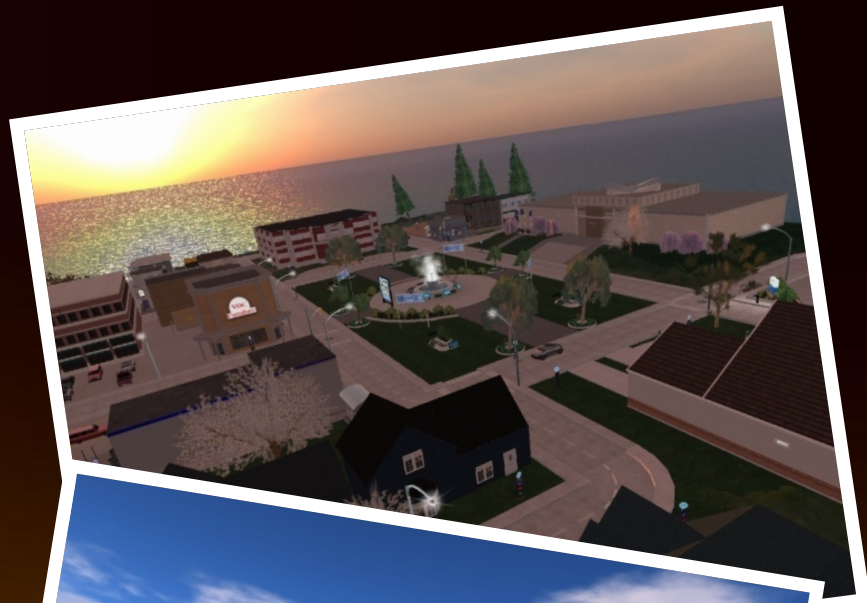
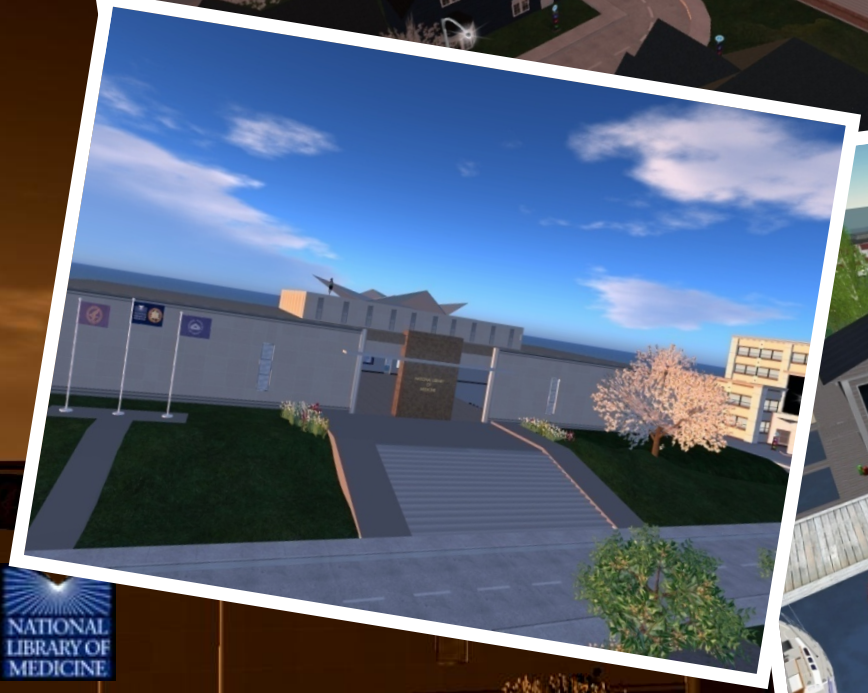
1. Tox Town in Second Life





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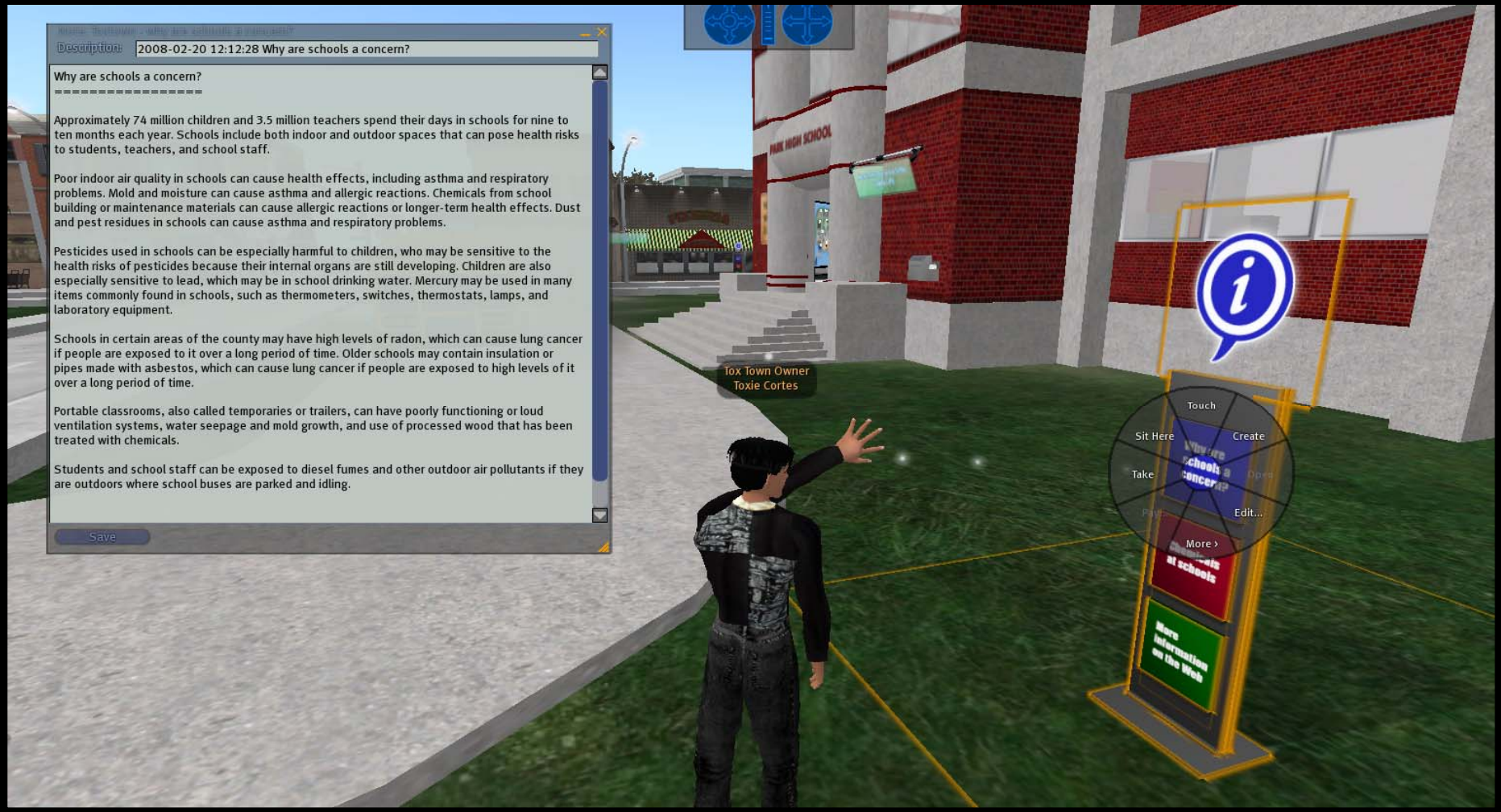
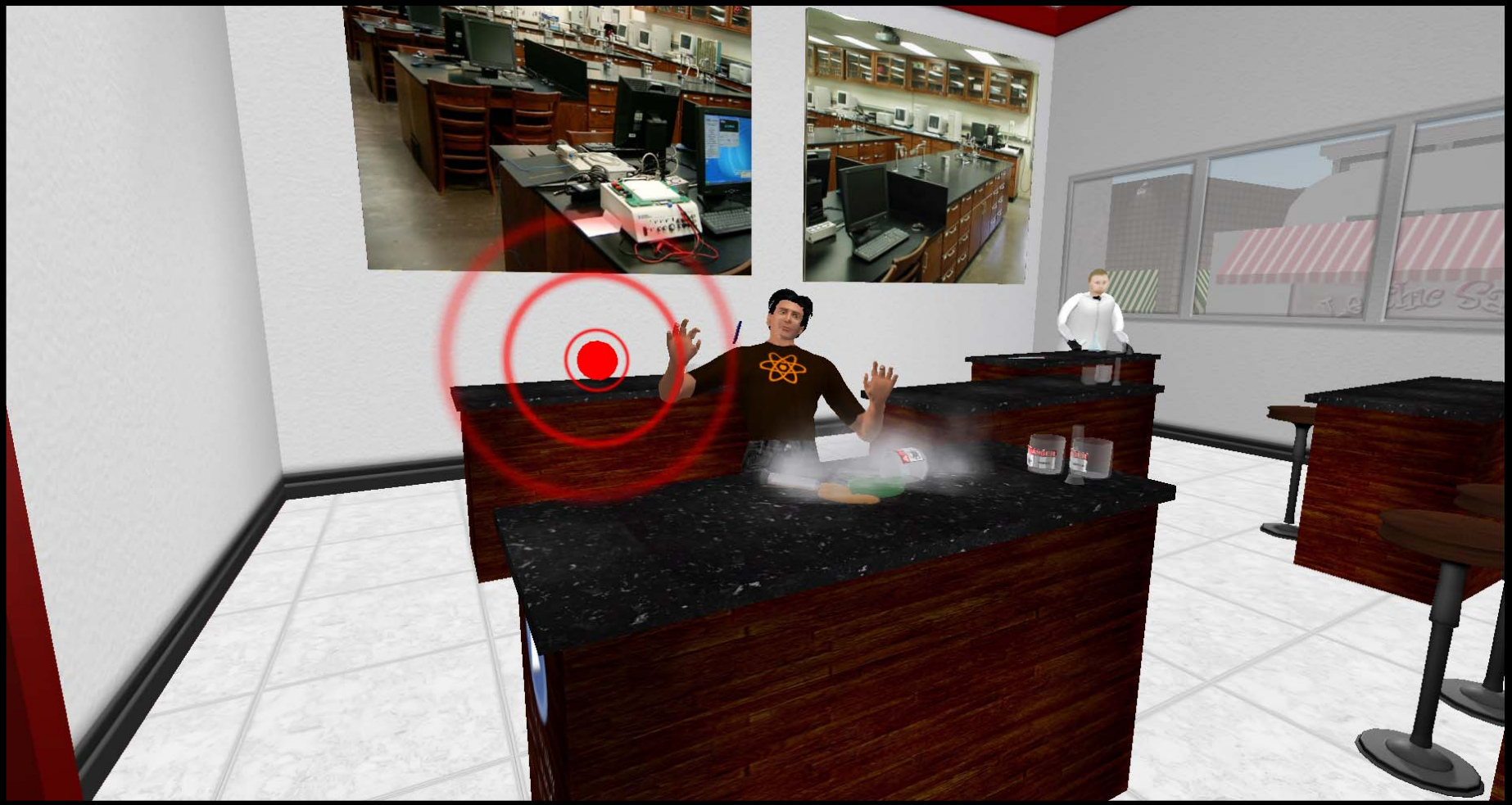
1. Tox Town in Second Life



1. Tox Town in Second Life



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1. Tox Town in Second Life

Goals:

- Learn the technical capabilities of SL.
- Learn to develop, and maintain applications in MUVEs.
- Learn whether and how MUVEs can complement NLM's Web-based information applications.
- Evaluate VWs for training, education and other outreach activities.
- Prepare ourselves for a much more immersive/social Internet.

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1. Tox Town in Second Life

Challenges:

- MUVEs are still pretty new technologies
- Lot's of users in SL, but not in one place
- Hosting totally depends on Linden Labs, Inc.
- Security and safety issues
- Information maintenance over time
- Section-508 compliance (accessibility)
- Virtual place ~= Real place ➔ **staffing**!

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2. Emergency Response Training

- Project with Bethesda Hospitals.
- Research question: Can a virtual world platform significantly improve emergency training at these hospitals?

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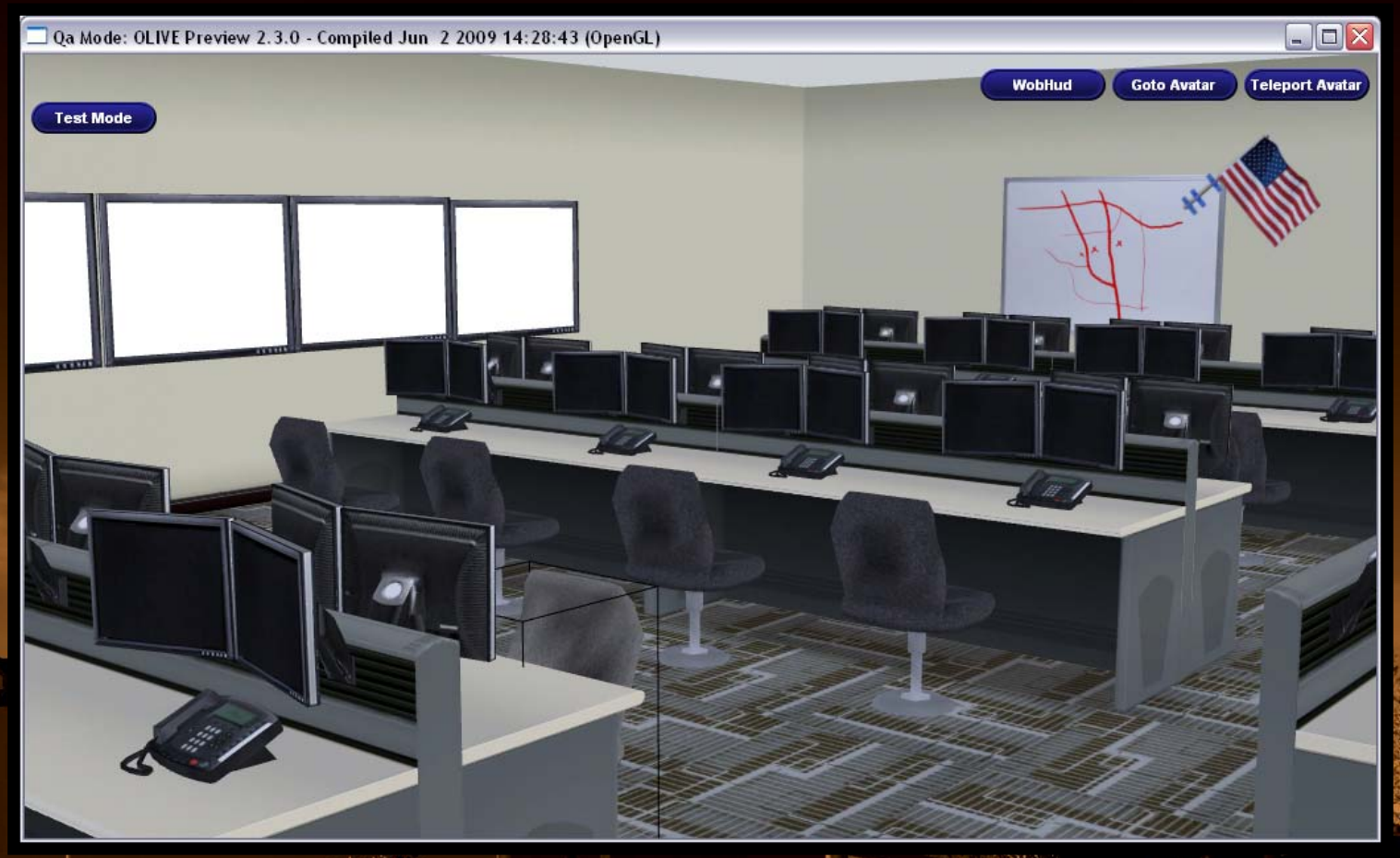
2. Emergency Response Training

- Using SAIC Olive platform
- Private, secure VW platform
- Training has three components
  - Web-based concepts training
  - Web-based interactive learning
  - VW-based collective exercising

2. Emergency Response Training

- Emergency Operations Center simulation



2. Emergency Response Training

Goals:

- Complementing and enhance table-top emergency/disaster exercises.
- Leveraging other virtual world features for collaboration and learning.
- Leveraging 3-D mapping to enhance training and planning.

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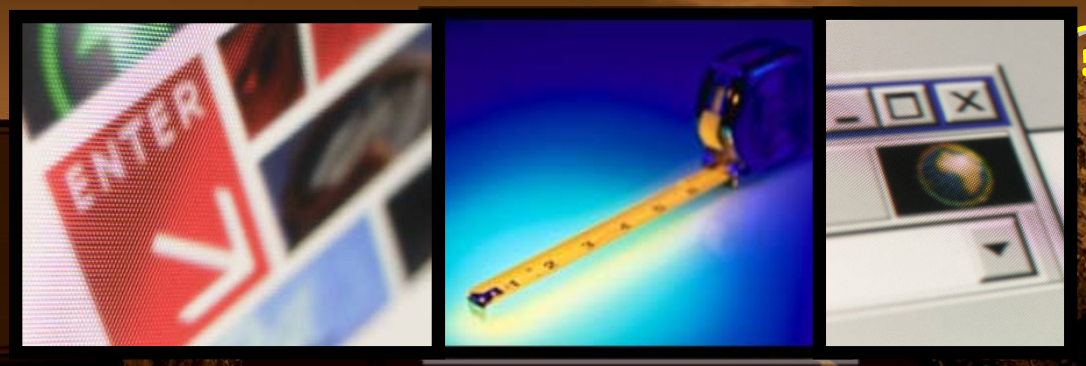
3. Evaluation Methods Research

We always evaluate our information applications

- We know how to evaluate apps on the Web.
- NLM published an evaluation framework in 2005.
- NLM Framework developed by the end of the Web 1.0 era → summarized years of practical experience.

→ How  ?

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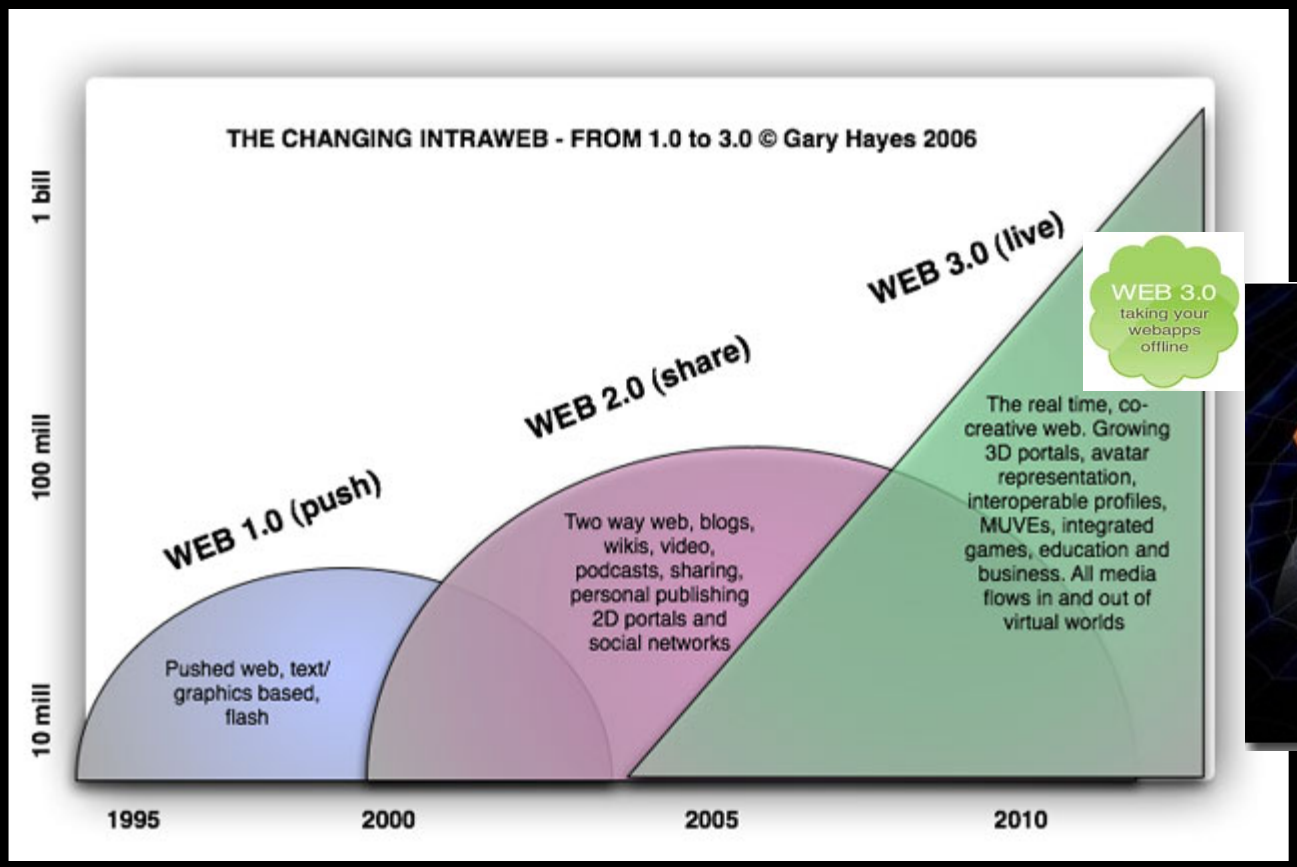
3. Evaluation Methods Research



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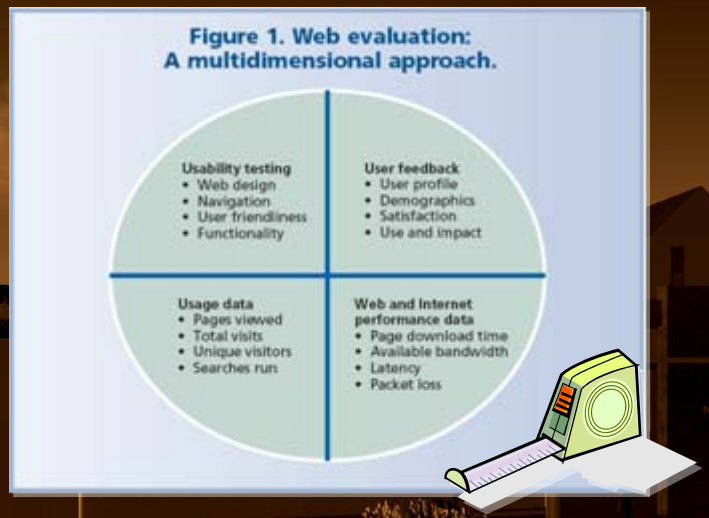
3. Evaluation Methods Research

Goals:

- Determine applicability of existing framework.
- Produce practical evaluation framework for government applications in VWs.

Web



VWs

3. Evaluation Methods Research

- Four-dimensional approach:
  - Network and application performance (e.g., response time(s), server latencies, frame losses, etc.)
  - Quantitative usage (e.g., total visits, "page views")
  - Usability testing (e.g., navigation design, friendliness, aesthetics)
  - User feedback methods (e.g., user profile and demographics, satisfaction)

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3. Evaluation Methods Research

- Some of the challenges:
  - VWs don't have a common architecture.
  - Some metrics easily map, others don't.
  - VWs may require some totally new metrics.
  - No commercial tools/services for VW evaluation.
  - …

3. Evaluation Methods Research

- "Heat map" example:

4. NLM Exhibits in VWs

- NLM exhibits products and services at many professional meetings, events and at NLM.
- Can MUVEs be useful exhibit venues for NLM?
- Using Second Life as a test bed

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4. NLM Exhibits in VWs

- Against the Odds Exhibit (Public health accomplishments around the world)

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4. NLM Exhibits in VWs

- World AIDS Day 2010

Conclusions

- We used to connect **to** the web.
- We now connect **via** the web.
- In the future, we may connect **in** the web.

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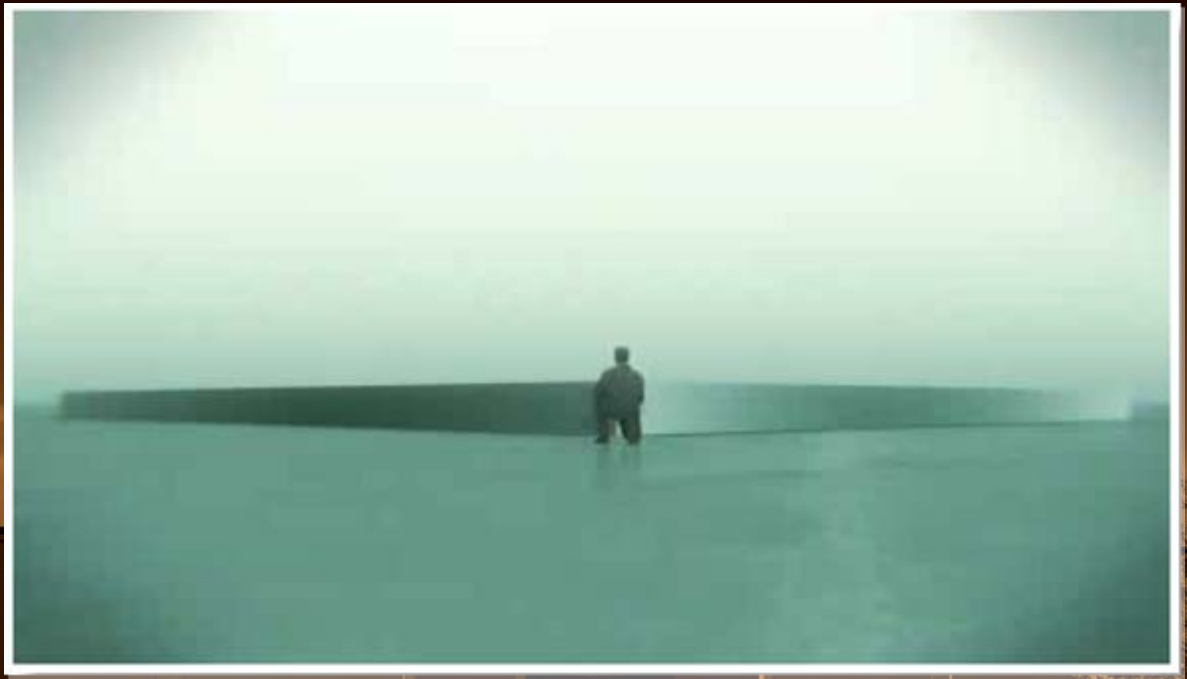
Video

- Bruce Branit's *World Builder (2009) 9min.*

  http://www.vimeo.com/3365942



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