"Roughly, there are two kinds of people:
those who look through technology...and are stretching themselves out to touch the goal and
those who want it NOW...and go bah, without even living and breathing in virtual
environments, understand and see thru.. .the little glitches.
"It's the first ones that will decide how far developments will go in virtual environments like
Second Life." (after **Ramesh Ramloll** aka Moriz Gupte, Play2Train)

Get your Consumer Health Information from an Avatar! : Health and Medical Related Activities in a Virtual Environment

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ABSTRACT:
Together with Carol Perryman (MSLIS, TRLN Doctoral Fellow at School of Information & Library Science, University of North Carolina at Chapel Hill) Guus van den Brekel (Coördinator Electronic Services of the Central Medical Library at University Medical Center Groningen in the Netherlands), is working in a Grant-funded project: **"Providing Consumer Health Outreach and Library Programs to Virtual World Residents in Second Life"**.
HealthInfo Island ,which is the home of the Consumer Health Library, the SL Medical Library and NLM/SIS, wants to be a central point in SL for health and medical information and is investigating possible ways of further cooperation with other health and medical non-profit organizations.
One of the main targets for the project is to reach out to all Support Groups in Second Life.
A brief summary of our findings about working in a virtual environment like Second Life and some future developments is included, as well as an overview of health, educational, clinical, medical related activities in Second Life.

KEYWORDS: Second Life, Reference, Consumer Health, virtual world, Support Groups, Medical Library, HealthInfo Island

Introduction

In 2006 the Alliance Library System (ALS) partnered in with the University of Illinois Library of the Health Sciences-Peoria, the Central Medical Library, the University Medical Center Groningen (UMCG) in the Netherlands, and TAP Information Services for a 18-month project intended to provide consumer health information services in the virtual world of Second Life. The Alliance Library System (ALS) was awarded a $40,000 Grant by the Greater Midwest Region NN/NLM.
The original Grant application formulates a foundation of evidence:

>*"Online medical groups often provide a source of emotional support, referrals, and health information (e.g.: news about new medications and their side effects), and help one another to navigate the often bewildering alternate worlds of healthcare*

institutions".[1-2] Communities such as Second Life can provide an atmosphere for empathic interaction, sharing experiences and information sometimes not otherwise provided within the physician-patient relationship.[3] Questions arising during the course of everyday life for those who suffer from chronic disease can seldom be answered at the time of need, so the Internet (and peers within a community such as Second Life) helps to fill an important gap in understanding. Consumer health librarians working within such a community may be able to span the gap, and by doing so, to expand upon our understanding of these increasingly popular communities.

Additional motivation for starting this project was found in the adult search behavior for health information on the Internet, proven to be one of the most popular search topics. [4]

About Second Life and Virtual Environments

Everybody knows what people are referring to if they mention the "Digital Library". Our jobs as (medical) librarians nowadays consists mainly of preserving, expanding and improving our expensive digital resources and e-journals. We think of better ways to shape this "electronic" library to fit the information needs of clinical and research staff working within our organization, within the working and learning "environments of our users. The concept of "virtual" environments though, raises some eyebrows, but most people still grasp the meaning or at least suspect what it refers to. They think about e-learning tools like Blackboard, their Intranet site of the organization, and some might think about Teleconferencing or even web-based applications like Microsoft Sharepoint.
Hearing the words "Virtual worlds" or "Virtual Environments" in connection to games, they do not think it can or will be useful for their everyday (work) life. The use of (online) games is supposed to be limited by our children and fanatic gamers, but research shows that the use of gaming technologies within learning environments is growing and beneficial. [5] The University Medical Center of Groningen (UMCG) has even developed a special SIMS-like game called GIDZ (Gaming In De Zorg) to train their staff in subjects like dementia, aggression-prevention and legislation[6].

According to Wikipedia a **virtual world** is *:*

> *a computer-based simulated environment intended for its users to inhabit and interact via avatars. This habitation usually is represented in the form of two or three-dimensional graphical representations of humanoids (or other graphical or text-based avatars). Some, but not all, virtual worlds allow for multiple users.*
> *The world being computer-simulated typically appears similar to the real world, with real world rules such as gravity, topography, locomotion, real-time actions, and communication. Communication has, until recently, been in the form of text, but now real-time voice communication using VOIP is available. This type of virtual world is now most common in massively multiplayer online games (Active Worlds, There, Second Life--although not games, per se, but more like virtual environments that can include gaming--Entropia Universe, The Sims Online, Red Light Center, Kaneva, Weblo), particularly massively multiplayer online role-playing games such as EverQuest, Ultima Online, Lineage, World of Warcraft, or Guild Wars. (Wikipedia, September 2007)*

Second Life can be described as:

> *"a rapidly growing online Internet-based 3D virtual world created by its users.*
> *Second Life has a functioning economy, complete with currency exchange services for*
> *converting the local currency (Linden dollars) into US dollars.*
> *Second Life (abbreviated as SL) is an launched in 2003, developed by Linden*
> *Research, Inc ,which came to international attention via mainstream news media in*
> *late 2006 and early 2007. A downloadable client program called the Second Life*
> *Viewer enables its users, called "Residents", to interact with each other through*
> *motional avatars, providing an advanced level of a social network service combined*
> *with general aspects of a metaverse. Residents can explore, meet other Residents,*
> *socialize, participate in individual and group activities, create and trade items (virtual*
> *property) and services from one another." (Wikipedia, September 2007)*

Why offer services in Second Life?
Keyword in the fast growing of virtual worlds like Second Life are "communication, graphical, network, social and interaction". Computer technology, and most importantly new web technologies (called Web2.0 by some) makes it possible to virtually connect everybody with everything. People's innate urge to connect with other people makes them use these tools massively, changing and shaping the environments in the process. "People will change their habits quickly when they have a strong reason to do so, and people have an innate urge to connect with other people" Marc Andreessen, co-founder Mosaic, Netscape.[7]
The shift that is taking place, caused by these web developments, has consequences for libraries as well. A more user-focused policy in which library and their services become more visible and accessible from within user environments is needed. Virtual worlds like Second Life are seen by many as the next step to a 3D-graphical Web interface.
Given the nature of Second Life it is an ideal platform for (patient) Support Groups of all kinds, because there are no limits to what your "virtual" self can do in Second Life, no matter what disease or physical limitation you have.

In this social environment, this virtual world the ALS, together with OPAL (Online Programming for ALL Libraries) started a Second Life Library project to develop library services for users within this virtual reality. It all started with a relatively small piece of land in March 2006, but grew fast, as did also the number of SL residents (250.000 in March 2006 to 9.3 Million in September 2007). It needed an island of it's own, called Infoisland (www.infoisland.org). It is run mainly by volunteers and now offers a variation of services, activities and exhibitions and attracts thousands of visitors every day. The Second Life Library 2.0 Group has 1346 members, and the Google discussion group 584.
People who are visiting InfoIsland and surrounding partner Islands know they will not get in contact with violence, gambling or porn. This secure environment, the inspiring work of Lori Bell as project manager (Lorelei Junot in world) and the promising features for educational and social activities within SL made the number of islands grow to a total of 35 in September 2007.

Consumer Health Information
The *Consumer Health Library* is identifying existing support groups in Second Life, with the intension to implement an outreach program, and to explore practices of health information transfer. This project has begun by compiling a long list of support groups, which benefits SL residents immediately as a resource, while serving as a framework for the beginning of outreach activities.
Carol Perryman has –as Carolina Keats- connected with health information professionals,

other health librarians, and with support groups to create displays and coordinate health events. Most recently, the island hosted SL's Diabetes Support Group, the AIDS/HIV support group, and is encouraging several start-up groups, such as the one for agoraphobics, and another, for parents of children with leukemia.

The target populations are SL residents participating in identified medical groups, interested individual residents, and outside groups, who might be interested in Second Life as a platform for providing services and outreach for health services.

Reference Services

We plan to develop reference services cover a 24/7 service, depending on available volunteers. Optimal presence on the Islands is very important to build visitors trust. Basically the questions asked can be summarized as follows:

1. Basic or more advanced information about a disease or condition
2. Information about surgical procedures
3. Drugs and their side effects or interactions
4. How to find a support forum where people are dealing with the same issues you are facing
5. New research about diseases or therapies

Research

Important part of the Grant project is the research into benefits and effectiveness of "delivering" Consumer health Information in the Second Life environment. All resources, areas and informational displays are being "monitored" to evaluate effectiveness based on gathered statistics. Information on navigation, length of stay, items "touched" will be used as input for this research. Different training techniques will be tried during the project to see what is most successful, with the emphasis placed upon empowering individuals to make informed lifestyle and health decisions. Residents and medical professionals will have input into the types of sessions offered. Collaboration exists with an epidemiologist, an internal medical physician from Greece, medical information specialists, a retired pharmacist, an educator in nursing, medical and consumer health librarians, library paraprofessionals, and many others to accomplish the grant objectives.

Medical Library

The Second Life Medical Library (SLML) has developed its project plan by working closely with the Second Life Libraries (SLL). The main goal is to market existing library services and resources, to increase public awareness, and to improve access to freely available consumer and scientific medical resources. For the medical library, we are especially interested in exploring innovative ways of offering and distributing services.

Specific goals and objectives for the Medical Library are:

- Dare to explore. Offer displays, programs, and methods of access most libraries don't offer in real-life spaces, but that patrons like and need or want, focused more on visual and audio exchange than on text.
- Experiment with innovative delivery of services, while also exploring interactive possibilities between library & library staff and visitors.
- Advertise the presence and services of the Second Life Library 2.0, and of HealthInfo Island in particular.
- Identify possible target groups around non-commercial clinical, medical research and education activities within SL that have an open structure. A possible product here

might be an SL health directory that is in development as a wiki.[8]

Other Accomplishments

- Collecting and presenting quality consumer health resources about illness, drugs, allied/alternative and complementary medicine using US, European and other resources. This includes also presenting information about freely available scientific medical research, e-books, E-journals, Databases and Repositories as well as Podcast modules for listening to themed podcast sessions via MP3

- An in-world PubMed search available in the SL Medical Library. was developed by Hugo Dahlgleish,

- An experiment with artificial intelligence (AI) and Chat-technology, dubbed 'Healthy" enables patrons to ask health related questions even when there is nobody around. Healthy always has an answer - and sometimes, even a relevant one ;-). Besides being fun, this technology proves that *bot* (robotic) systems are getting smarter. Chatbots benefit from emerging technologies enabling immediate interaction, and are able to provide information in the form of a URL or TP-point, results from a Google 'define' search in IM chat, or even images on demand.
The technology used is the same as in a German project with Library Chatbots in digital reference. [9]

- Play2Train meetings and collaboration: Play2Train, the Idaho Bioterrorism Awareness and Preparedness Program's virtual training space in SL, offers another avenue for collaboration. This virtual environment includes a simulated town and a hospital for interactive role playing that will serve as the foundation for emergency preparedness education program. [10]

- Workshops on the evaluation of health information on the internet

- Trial access to EBSCO's Consumer Health Database and to Reuters Consumer Health News accompanied with Workshops on the Consumer Health Database.

Cooperation
Cooperation with outside groups interested in Second Life as a platform for providing services and outreach for health services has already been established with:

- Specialized Information Services/ National Library of Medicine (SIS/NLM)
The SL Health Information Outreach Research Lab building was created by the Specialized Information Services (SIS) Division of the National Library of Medicine (NLM). SIS is exploring Second Life as a venue to provide health information to special populations, and as a platform for testing new information delivery technologies that are being enabled by this 3-D environment.

- National Institutes of Health (NIH)
Members of the Advanced Technology Engineering group and employees of SRA International intend to research and explore emerging technologies that can be used at NIH.

- the Center of Diseases Control and Prevention (CDC)

- the University of Pittsburgh Medical Center (UPMC).

- The Karolinska Institute University Library

Medical & health sims in SL
- [Virtual Neurological Education Center](#) (VNEC)
  The VNEC demonstrates a virtual simulated experience, where people are able to actively expose them selves to the most common symptoms from which a person suffering from a neurological disability would be experiencing.
- [HeartMurmer sim](#)
  A heart murmur detection trainer implemented in world.
- [GenePool](#)
  The Gene Pool explores the laws of inheritance (physical traits of a plant could be thought of terms of pairs of parental factors), which were discovered by Johann Gregor Mendel in the mid-nineteenth century. Textures used in Second Life have been donated by the Mendel Museum
- [Anne Myers Medical Center](#)
  AMMC was created to test the possibilities of virtual training for First Life medical and nursing students.
- [UC Davis' Virtual Hallucinations](#)
  The virtual hallucinations project seeks to educate people about the mental illness schizophrenia
- [NLM Toxtown](#)
  The creation of the Second Life version of [ToxTown](#) : an introduction to toxic chemicals and environmental health risks you might encounter in everyday life, in everyday places.
- [Centers for Disease Control and Prevention](#)
- [Play2Train](#)
  This virtual environment includes a simulated town and a hospital for interactive role playing that will serve as the foundation for emergency preparedness education program.
- [MD Kiosk](#)
  Medical CEC Courses
- [Sl Healthy Wiki](#)
  Sl Health Directory in development

Observations
Second Life offers a new access point for people to find (health information). The ability to connect with people and exchanging knowledge and information are arguably the greatest benefit of the SL environment.
Second Life helps to transcend barriers and may well continue to develop into aWeb3D browser extended and integrated with Internet and Web 2.0 possibilities, including content, tools and resources, but is currently in a early stage of maturity.
Technical issues around the use of the SL client, the numerous updates, the down-times and the mastering of the interface are serious thresholds for many people to maintain their SL avatar. In our experience the avatar to avatar communication is not that different from real life reference services, and it certainly enhances the more impersonal web chat or IM library services.[11] It can also offer a trusted, secure and personal environment for consumer health

issues on a one-to-one level. With open-minded people who are willing to invest time to try to improve library services in general and really learn what users want and need, growth is inevitable.

Future developments
To stimulate participation of serious non-profit health organizations or groups, HealthInfo Island offers the free use of land for a 6-month period for free on EduIsland4.
HealthInfo Island will certainly grow and continue to support medical education, research, medical information literacy and to provide quality consumer health information and support for all SL residents. The SL Library offers librarians an opportunity to examine existing practices while exploring potential new paradigms beyond the restrictions and limitations that affect libraries in the real world. It is our experience that having special activities and events organized around health issues attracts substantial amount of visitors. It is the combination of content, visualization, having expert help within reach, and fun that makes the InfoIsland environment a success.

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(Parts of the content of this fulltext -accompanying my presentation- will be also published in a chapter –written together with Carol Perryman- of the book "Virtual Worlds, Real Libraries" to be published in the fall of 2007)