Project to provide a Virtual Collaboration Environment for the WoSCR Community

• Support for Whole of Society Crisis Response Community

• Cognitive Work Analysis of Requirements and Technologies

• Experiments with Virtual Collaboration Environment (VCE):
  – Web-based portal
  – Virtual interaction space
  – Community tools
  – Collaboration protocol

• USJFCOM, US ARL HRED, CMU, U.Virginia, U.Edinburgh, Perigean Technologies
Cognitive Work Analysis – Task Independent
## Work Organizational Analysis – Task & Agent Centric

Tuckman, B.W. (1965) Developmental Sequence in Small Groups

<table>
<thead>
<tr>
<th>Domain Functions</th>
<th>Work Situations</th>
<th>Intra-agency</th>
<th>National</th>
<th>Inter-agency</th>
<th>Multi-national</th>
<th>Inter-agency &amp; Multi-national</th>
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<td>Forming</td>
<td>Meet others</td>
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<td>Agree on goals</td>
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<td>Storming</td>
<td>Define problems to solve</td>
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<td>Define how to solve the problems</td>
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<td>Define how to function together</td>
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<td>Norming</td>
<td>Develop work habits with group</td>
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<td></td>
<td>Agree on rules, values, methods, etc...</td>
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<td>Performing</td>
<td>Assess outcomes</td>
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<td>Adapt to change</td>
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</table>
Requirements for Effective Distributed Task-centric Collaboration

- Mix of physical operations centres and remote access
- Bring in experts for improved analysis and option generation
- Mix of synchronous and asynchronous activity
- Share community knowledge and experience
- Share Standard Operating Procedures and Lessons Learned

Communication, Collaboration and Task/Process Centric Activities
Open Virtual Collaboration Environment

• Web-based Collaboration Portal
  – Drupal CMS
  – Also explored Facebook, Google Groups, Yahoo Groups, Ning Groups, Grou.ps, Joomla,
    Linkups to external web services and widgets

• Virtual World 3D Space
  – Second Life™ and Second Life Enterprise
  – OpenSim (allows for secure use, potentially behind a firewall, e.g. US government)

• Virtual Collaboration Protocol
  – Standard Operating Procedures
  – FAQ and Tips
  – Collaboration Protocol (with Rob Cross, University of Virginia)

• Community Tools
  – AIAI I-Room – a Virtual Space for Intelligent Interaction
  – CMU Catalyst Community Knowledge Base
  – IHMC/Perigean Technologies Concept Maps
  – Experimental 3D Model Visualizations
OpenVCE Web Portal – Roles of Elements

Collaboration Tools – Roles of Elements

Web Pages – definitive edited content and index pages (editorial control)

News and Calendar – Activity Awareness

Discussion Forums – threaded discussions within community

Wiki – community knowledge creation and refinement

Blogs – individual web logs

Status – current activity

Comments – can be added to most elements
Welcome to the OpenVCE community portal. All content is community-created, so become a registered user and start contributing!

Forthcoming events

Federal Consortium for Virtual Worlds Conference 2010 2 weeks 5 days from now  contact: Austin Tate

WoSCR Community - Possible Virtual Iterative Workshop Series - VIWS-4 5 weeks 2 days from now  contact: Austin Tate

Current discussions

OpenVCE envisioned site structure started by Jeff Hansberger, last reply by Austin Tate 28 weeks ago

The weakest link started by ac, last reply by erapisardi 4 weeks ago

Expt. Case O H1N1 Forum started by Austin Tate, last reply by Jeff Hansberger 18 weeks ago

What are you doing?

Austin Tate Meeting Ken Anderson of Project EPIC - see http://sn.im/tweetk 1 day ago  Edit Delete

Austin Tate Writing paper on OpenVCE support to WoSCR for KSCO-2010 http://kaco.info/kaco-2010.html 2 days ago  Edit Delete

Ifuentes Preparing a presentation to the Virginia Local Government IT Executives (VALGITE) for Apr 26 on VOICECE 3 days ago
I-Room: Mixed-initiative Collaboration
A Virtual Space for Intelligent Interaction

Truly distributed mixed initiative collaboration and task support is the focus of the I-Room, allowing for the following tasks:

- situation monitoring
- sense-making
- analysis and simulation
- planning
- option analysis
- briefing
- decision making
- responsive enactment
Sensing and Situation Analysis
Planning, Evaluation Option Argumentation
Briefing and Decision Making
Central Meeting Area
Acting, Reacting and Communication
Sensing and Situation Analysis
I-Room Applications

- Virtual collaboration centre
- Business teleconferencing
- Team Meetings for project and product reviews
- Product Help Desks
- Design to Product – product lifecycle support
- Environment, building and plant monitoring
- Health and safety at work, disability awareness
- Intelligent tutors, guides and greeters
- Active demonstration pavilions
I-Room: a Virtual Space for Intelligent Interaction

Operations Centres for Mixed Agency Operations

EADS/Airbus Innovation Works G7 Summit Exercise
http://vue.ed.ac.uk/associates/eads/
Virtual Worlds for Simulation & Training

- MOSES – Military Metaverse, US Army and other US government agencies
  http://www.militarymetaverse.org
  http://blog.inf.ed.ac.uk/atate/moses

- VOICCE – Virginia’s Operational Integration Cyberspace Center of Excellence
  http://openvce.net/voicce

- International Virtual Emergency Exercises (IVEE) and Multinational Planning Augmentation Team (MPAT)
  http://openvce.net/event-ivee1
  http://openvce.net/mpat

- Simudyne SimuGrid in OpenSimulator
BlueWallSlade @gateway.bluewallvirtual.net:8002: Cinder - thanks for working with us to get parts in the viewer :)
BlueWallSlade @gateway.bluewallvirtual.net:8002: .
Fred.Appleby @hg.viewtwo.net:8654: Good idea Robert
Cinder.Biscuits @iftgrid.com:8002: of course, and I still have more to do.
3D and Virtual Reality
Social Networking
Instant Messaging
Agent Presence
Content Management
Intelligent Agents
Collaborative Systems
Community Knowledge
Semantic Web
Teleconferencing
Web Services
VoIP
http://openvce.net
Further Slides for Details

- More information on Work Analysis Phases I and II
- OpenVCE Experimental Evaluation
- I-Room: More Sample Screens
- DICE Project: Simplified I-Room
Cognitive Work Analysis – Phase I

Vicente, K. J. (1999) Cognitive Work Analysis
Cognitive Work Analysis – Phase I

The first phase of the Cognitive Work Analysis involves identifying the activity-independent constraints of the work domain:

- **Domain purpose**: the overarching goal to be achieved – in this case, distributed collaboration.
- **Domain values and priorities**: principles or qualities on which work in the domain is founded – in this case, we can identify coordination, communication and activity awareness as essential components of distributed collaboration.
- **Domain functions**: the realization of the domain values and priorities (and fulfillment of the domain purpose) as abstract functions within the domain.
- **Physical functions**: the realization of the domain functions in terms of techniques.
- **Physical objects**: artifacts that provide some aspect of the identified physical functionality, with particular reference to novel “Web 2.0”-type technologies that may be exploited alongside common existing technologies.

By pinpointing specific tools and providing a clear functional rationale for their use, the resulting analysis provides a roadmap for the development of a VCE that meets the functional objectives of the domain.
Work Organizational Analysis – Phase II

The second phase of the Cognitive Work Analysis situates tasks at the appropriate organizational level according to the actors involved.

One dimension of this is based on the domain functions identified in the CWA, each now elaborated according to specific work tasks.

The second dimension reflects increasing geographical and organizational dispersal – from local and intra-agency through national inter-agency and on to multi-national and involving civil and military participants.
Work Organizational Analysis – Phase II

Tuckman, B.W. (1965) Developmental Sequence in Small Groups
OpenVCE Evaluation: Goal & Procedural Uncertainty

OpenVCE Evaluation: Concepts explored in Plan Document produced by each Group

OpenVCE

Virtual Collaboration Environment: Team A

Collaboration Facilities
- Team E-mail: Send an e-mail to the team
- Current team member roles
- Team protocol: the Virtual Collaboration Protocol (VCP)
- Team protocol: video introduction (WMV and WMV) - download [backup 1] [backup 2] (hampton.gov users local link)
- Team 3D Space: 3D Space located at: http://surl.com/secondlife/VCE/18/80/22 [One Applet]
- Doodle Poils [none]
- Post personal blog entry
- Team Wiki

3D space
- Map view tool
- Team A
  - This is a closed group. The group administrators add/remove members as needed.

My groups
- Not a member of any groups.

Who's online
- There are currently 7 users and 1 guest online.
  - admin
  - guest
  - clothesman
  - asassin
  - [username]
  - 1 others

VCP Progress: Overview
Case: Reindeer Flu
(Help: SDF)

VCP Task
<table>
<thead>
<tr>
<th>Help</th>
<th>Completed</th>
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<td>SDF</td>
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OpenVCE Presenter v2.1 Now showing: http://randall.asl.ai/uk/a_tBerhardt/VCP/TeamExperience/index0.html
Virtual Worlds Space Simplification
Uncluttered I-Room in MOSES/OpenSim
OpenVCE
... open virtual collaboration environment

http://openvce.net