CULTURAL CONSIDERATIONS IN A SIMULATED EMERGENCY

Elizabeth Whitaker[(a)], Rita Gonzalez[(b)], Ethan Trewhitt[(c)], Reid MacTavish[(d)], Margaret Loper[(e)]

[(a,b,c,d,e)]Georgia Tech Research Institute

[(a)]betty.whitaker@gtri.gatech.edu [(b)]rita.gonzalez@gtri.gatech.edu [(c)]ethan.trewhitt@gtri.gatech.edu
[(d)]reid.mactavish@gtri.gatech.edu [(e)]margaret.loper@gtri.gatech.edu

ABSTRACT

This paper describes the exploration cultural considerations in a simulated emergency. We explored the use of cultural variables as components of human behavior modeled by an agent-based system. The goal of the project was to provide a framework to enable training for first responders in the reactions of populations in crisis. As part of this exploration we have built a prototype that models a small population of individuals going about their daily routines and responding to the societal stress introduced by a flu outbreak and by an earthquake. The model allows a user to explore the ways in which habits and behaviors affect the spread of the disease. We have constructed a framework that allows for experimentation with the influences of a number of cultural and behavioral.

Keywords: agent-based simulations, cultural variables, simulation-based training

1. INTRODUCTION

The Georgia Tech Research Institute team researched the representation in an agent-based model of cultural considerations in a simulated emergency. The goal of this project was to research new ways for first responders to experience training that would allow them to become familiar with possible population behaviors and reactions to crisis and to the presence and activities of the first responders. This would allow them to explore appropriate interactions to anticipate the population's reactions. We have designed and prototyped a representation and framework to be populated with cultural and psychological variables that can be used to drive behaviors of the agents in the simulation. Agents will be assigned variable values representative of the cultures in the population being studied

2. CULTURAL MODELING

This project explores the use of cultural variables as components of human behavior modeled by an agent-based system. As part of this exploration we have built a prototype that models a small population of individuals going about their daily routines and responding to the societal stress introduced by a crisis such as a flu outbreak or an earthquake. The phase I model allows a user to explore the ways in which habits and behaviors affect the spread of the disease. We have constructed a framework that allows for experimentation with the influences of a number of cultural and behavioral variables on the spread of the disease. A user can change the value of the behavioral variables for individual agents while performing what-if experiments to gain insight into the effects on the outcome. Different cultural and behavioral variables can be inserted into the model to experiment with their effects on the disease spread. The current model instantiation is based on a hypothetical culture. As the model matures, it would be useful to model multicultural populations, such as might be represented in a US city.

Culture, for the purposes of this project, refers to the arts, customs, habits, beliefs, values, behaviors, or objects that constitute a people's way of life and the human interactions, rules, and processes that bind and separate people as individuals or groups. The cultural variables considered as candidates for inclusion in our behavioral model come from literature (e.g., Hofstede, D'Andrade and Strauss).

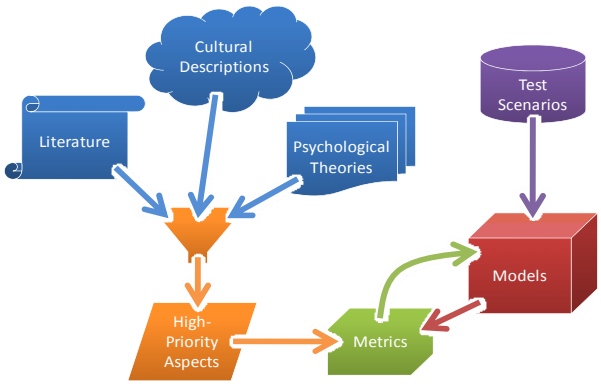


Figure 1. Integrating cultural variables into behavioral models

Every model is a simplified representation of the real world. Models are typically constructed for the use of analysts wishing to gain a greater understanding of a situation and its influences. Tools and methodologies to support this will be most effective when they include representations of behavioral drivers that support the

ISBN 978-88-903724-3-8

analyst's view of the population's cultural and psychological makeup. To build a representation of the external world, a modeler or analyst must choose which entities are most important to include in the model, based on information from subject matter experts, the intended use of the model, and the relative impact that each entity has on the system's behavior. This research focuses on the use of cultural variables and explores the choices of those variables and the implementation of their effects on the agent behaviors.

During phase I we chose some sample variables from the following three psychological theories:

- **Social Identity Theory** – members of all social groups come together around at least one common denominator
- **Social Influence Theory** – people are driven to agree with others in order to be liked and accepted by them
- **Attribution Theory** – issues of causation and explanation are crucial to understanding social phenomena and all human interaction

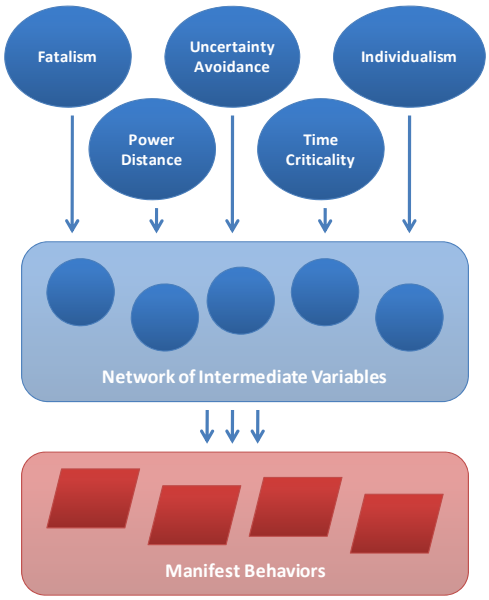


Figure 2. Relationship between high-level independent variables and low-level manifest behaviors (Phase I)

3. PHASE I SCENARIO

For the initial experiment in modeling the flu outbreak, we have chosen the following set of variables, which are loosely based on Hofstede's work. Figure 2**Errore. L'origine riferimento non è stata trovata.** shows how these variables generally relate to the manifest behaviors.

- Fatalism
- Uncertainty avoidance
- Individualism
- Power distance
- Time-criticality

We include a number of related behavioral variables such as busyness, age, and fastidiousness that will help guide the behaviors of the simulated individuals (agents). These variables lead to activities that in the model impact the spread of the disease: getting inoculated, going to work, shopping, and visiting a doctor.

With cultural variables and their expected effects as identified by psychologists and other behavioral experts, models of this type could be used to plan public health motivational campaigns and to identify the locations, schedules, and types of services that would most likely be effective in inhibiting the spread of the disease. This framework would also be useful for modeling population reactions to other types of crises and associated educational or public health approaches, emergency response activities, and government policies, in order to support human decision-making.

4. PHASE I MODELING APPROACH

We created a modeling environment in which the agents representing individuals in the society would go about their daily lives in the context of the unfolding crisis, the flu epidemic. The prototype was meant to demonstrate the use of this approach to explore the spread of disease in a community:

- Explore the ways that human behaviors and cultural variables might be represented
- Explore how human behaviors affect disease spread
- Explore ways to support decision-makers to understand behaviors and motivations

As we began to develop the prototype model we went through the following questions to guide our model development and to describe the agent-based modeling activity.

Table 1. Modeling Questions

Question	Answer
What questions is this model trying to answer?	How does the culture of a society affect the spread of the flu?
What are the agents?	Individual people
How will we specify the agent behaviors?	Agent attributes are encoded as a series of causally-related cultural variables, and variables influence agent decision resulting in specific behaviors.
Variables influence agent decision resulting in specific behaviors.	Agents (people) meet in geographic space and come into contact based on some probability; the flu will spread (with a given changeable probability) if a sick person contacts a well person.
What is the	The agents interact in a

ISBN 978-88-903724-3-8

context?	geographical space representing homes, work, schools, shopping and hospital. At the start, a "seed" group has the flu already.
How will they behave?	Each person has a specific instantiation of cultural variables and reacts according to his/her preferences.

In addition to the variables given to each agent, our agent-modeling environment allows us to create a set of behavioral rules that determine how the agents will make decisions as the model plays out. The rules that we developed for this model are described in Table 2 below:

Table 2. Selected Individual Agent/Person Variables

Individual *State* Variables
age
sick? (is the person visibly sick?)
inoc? (is the person immune due to inoculation?)
tried-inoc? (did the person try to get inoculated?)
infectious? (is the person infectious?)
Individual *Intention* Variables
will-get-inoc?
will-go-to-workschool?
will-go-to-store?
will-go-to-doctor?

Example: members of a fatalistic society are less likely to believe in the efficacy of their own actions, and as a result are less likely to get inoculated. Figure 5 (next page) shows how these rules affect the decision of an individual agent in this system as to whether or not to get an inoculation.

The sequence of screenshots in Figure 6 (next page) shows the spread of the disease unfolding over time. The graph to the right of each screenshot shows the number of individuals in each category. Table 3 shows what each color represents.

Table 3. Screenshot Color Legend

Agent Colors		
White		Not yet exposed
Red		Visibly sick
Beige		Infected but not yet showing symptoms
Blue		Inoculated but not yet immune
Purple		Immune due to inoculation
Green		Cured after being sick (immune)
Background Colors		
Red		Store/public place
Blue		Hospital/doctor's office
Yellow		School
Orange		Work
Grey		Homes

Figure 3 and Figure 7 below shows the differences in outcome when the community has a high fatalism variable value vs. a low fatalism value.

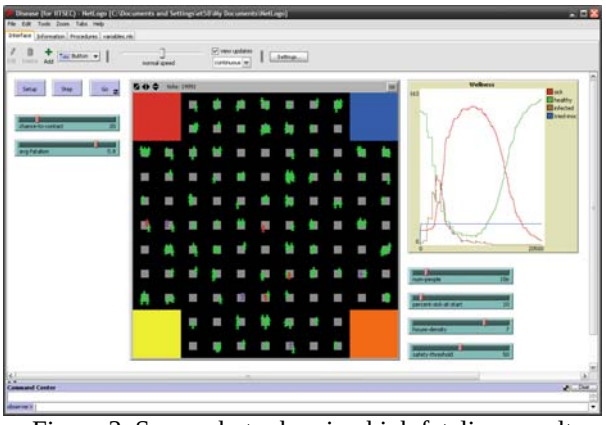


Figure 3. Screenshots showing high fatalism result

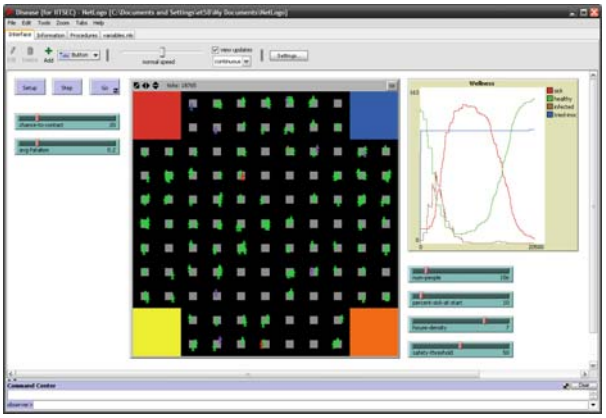


Figure 4. Low fatalism result

5. PHASE II SCENARIO

As part of the Phase II exploration we have built a prototype that models a small population of individuals going about their daily routines and responding to the societal stress introduced by an earthquake emergency. The model allows a user to explore the ways in which habits and behaviors affect each person's injury level during and immediately following the earthquake. We have constructed a framework that allows for experimentation with the influences of a number of cultural and behavioral variables on each person's preparedness and resilience. A user can change the value of the behavioral variables for individual agents while performing "what if" experiments to gain insight into the effects on the outcome. Different cultural and behavioral variables can be inserted into the model to experiment with their effects on each person's wellbeing. This model instantiation includes a hypothetical multicultural population consisting of three different cultures.

Culture, for the purposes of this project, refers to the arts, customs, habits, beliefs, values, behaviors, or objects that constitute a people's way of life and the human interactions, rules, and processes that bind and

ISBN 978-88-903724-3-8

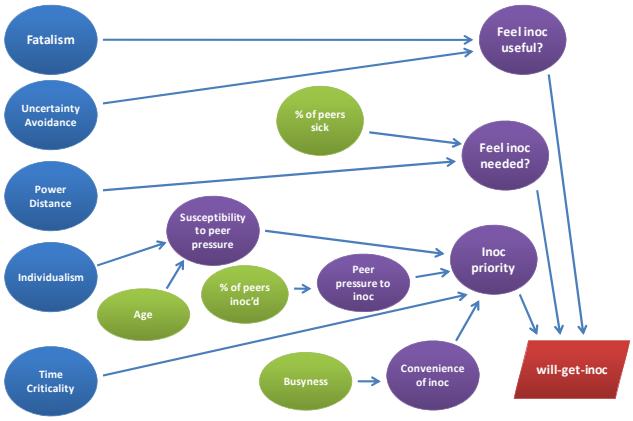
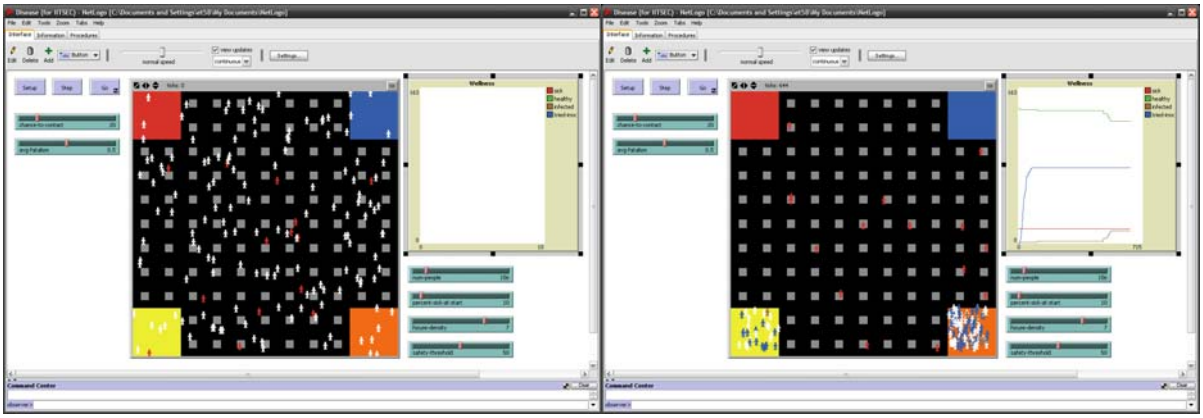
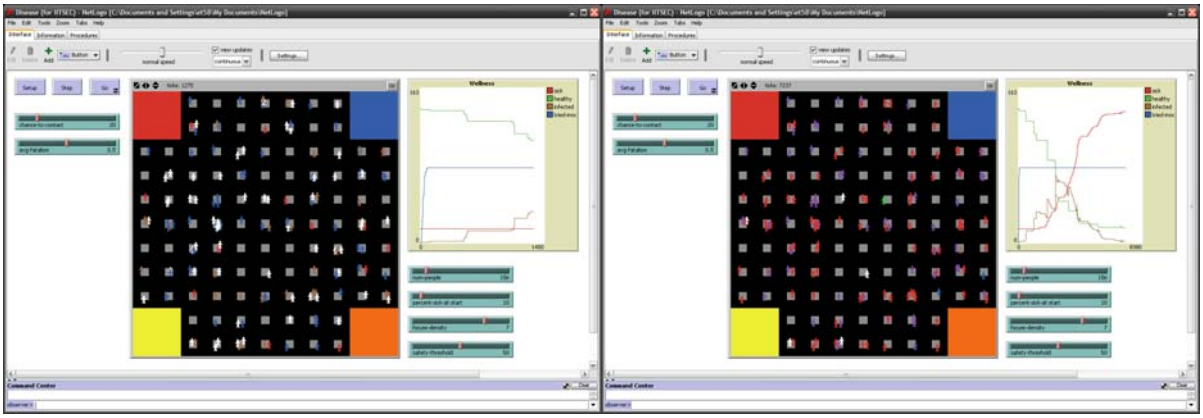


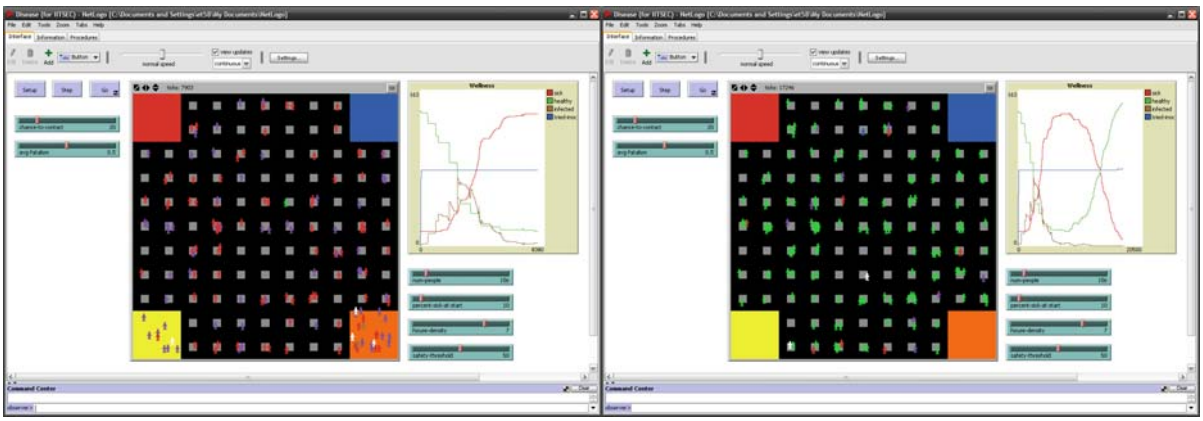
Figure 5. Agent Inoculation Decision



Simulation Start Day 1



Night 1 Night 5 (note sick people)



Day 6 (note presentees – sick people at work) Day 12 (mostly cured)

Figure 6. Screenshots of flu simulation execution

ISBN 978-88-903724-3-8

separate people as individuals or groups. The cultural variables considered as candidates for inclusion in our behavioral model come from literature (e.g., Hofstede, D'Andrade and Strauss).

Every model is a simplified representation of the real world. Models are typically constructed for the use of analysts wishing to gain a greater understanding of a situation and its influences. Tools and methodologies to support this will be most effective when they include representations of behavioral drivers that support the analyst's view of the population's cultural and psychological makeup. To build a representation of the external world, a modeler or analyst must choose which entities are most important to include in the model, based on information from subject matter experts, the intended use of the model, and the relative impact that each entity has on the system's behavior. This research focuses on the use of cultural variables and explores the choices of those variables and the implementation of their effects on agent behaviors.

5.1. Overview of Geert Hofstede's Cultural Dimensions

Geert Hofstede is a Dutch academic renowned for his research on national and organizational cultures. Hofstede's work has provided a framework for understanding cultural differences. He defines culture as the "collective mental programming" of a group, organization, or nation. It is this collective mind that distinguishes on group from another. In Hofstede's view, there are two aspects to culture. First, the internal aspects of a culture consist of the shared values and beliefs of a group; not easily discernible but crucial in understanding how human behavior is influenced by it. Second, the external aspects of a culture consist of a group's practices, language, and mythology.

Hofstede conducted a Values Survey Module and with its results he generated major themes or "dimensions" that described the characteristics of national cultures. Below are Hofstede's five cultural dimensions:

1. **Power Distance:** This characteristic of culture refers to the extent to which the less powerful person in a society readily accepts inequality in power and expects power to be distributed unequally. "All societies are unequal, but some are more unequal than others" (Hofstede 1980).
2. **Individualism:** This characteristic of culture refers to an individual's behavior towards the group. In an individualist society, "the social ties of individuals are loose and everyone is expected to look primarily after their own interests and their immediate families." In a collectivist society, "from birth individuals belong to close in-groups from which they cannot detach themselves. An individual is expected to give his/her in-group unquestioned loyalty but in exchange the group will protect the interests of each member.
3. **Masculinity:** This characteristic of culture refers to a society's proclivity to "use the biological existence of two sexes to define very different social roles for men and women." Masculine cultures socialize men to be assertive, ambitious, and competitive, and to strive for material success. Women in masculine cultures are expected "to care for the nonmaterial quality of life, for children, and for the weak." In contrast, men and women in feminine cultures have overlapping social roles.
4. **Uncertainty Avoidance:** This characteristic of culture refers to the extent to which people in a society "are uncomfortable with unstructured, unclear, or unpredictable situations and try to avoid these situations by adopting strict codes of behavior a belief in absolute truths." Societies characterized by high degree of uncertainty avoidance are aggressive; seek to be secure, and intolerant.
5. **Long-Term Orientation:** This characteristic of culture relates to the values of thrift and perseverance. In contrast, values associated with a short-term orientation, are a "respect for tradition, fulfillment of social obligations, and protecting one's face."

We include a number of related behavioral variables like gender, age, and busyness, which are unrelated to culture but still guide the behaviors of the simulated individuals (agents). These variables lead to activities that in the model impact each person's state of earthquake preparedness, e.g. becoming educated in earthquake safety or taking a proactive stance toward home preparedness.

With cultural variables and their expected effects as identified by psychologists and other behavioral experts, models of this type could be used to plan public health motivational campaigns and to identify the locations, schedules, and types of services that would most likely be effective in inhibiting the spread of the disease. This framework would also be useful for modeling population reactions to other types of crises and associated educational or public health approaches, emergency response activities, and government policies, in order to support human decision-making.

6. PHASE II APPROACH

This project uses a scenario-based approach, which provides a framework for analyzing the representation and reasoning functionality needed for the user to explore a given set of scenarios. The scenarios are textual descriptions of situations and include the context and environment in which they might exist. They are chosen to represent a portion of the space, which is typical of many of the problems that an analyst may

ISBN 978-88-903724-3-8

want to explore. This includes, in this project, identification of a category of questions to be answered by models, cultural descriptions and psychological theories of interest to apply to these models, and environmental contexts, which will supply a cross-section of the issues that modelers may encounter. The scenarios will cover a variety of population behaviors and types, and a variety of environmental variables, so that the requirements extracted will support a selected space of situations.

This effort extracts metadata from cultural descriptions and psychological theories, where the extraction process is the first step in representing qualitative data in a computational or quantitative form. The modeling process begins with reasoning about the characteristics of the description or theory that needs to be included in models to drive the behavior of individuals or organizations and that will impact societal trends. This process includes a review of relevant psychological theories and cultural descriptions and a process for identifying components of this qualitative information that could be represented in a model. Literature studies were used to identify those components that typically have the most effect on the behavior of individuals, organizations, and societies. The extracted metadata has been used to represent multiple cultures and psychological theories.

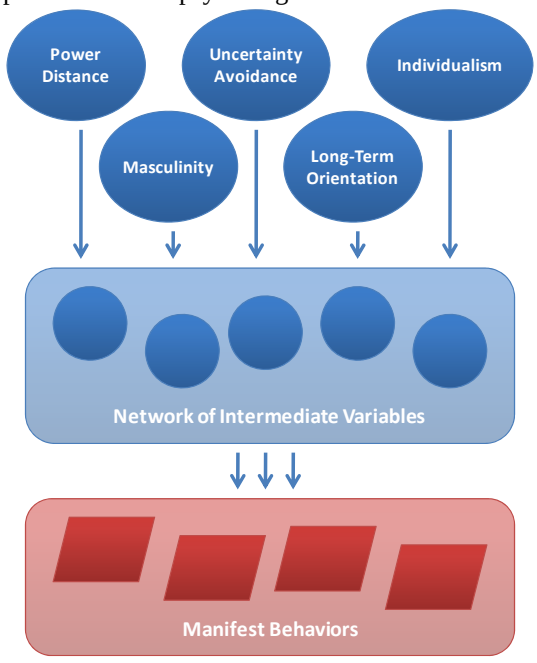


Figure 7. Relationship between high-level independent variables and low-level manifest behaviors (Phase II)

Once the appropriate independent and dependent cultural variables were extracted, a causal influence model was built to capture the graph of relationships between the high-level cultural variables (e.g. the five core Hofstede dimensions) and the low-level behaviors that are manifest within each person to affect his/her experience before, during, and after the earthquake. Figure 7 shows the basic relationship present in each simulated individual, while Figure 8 shows an example of the causal network that results in a person's decision to seek earthquake preparedness education.

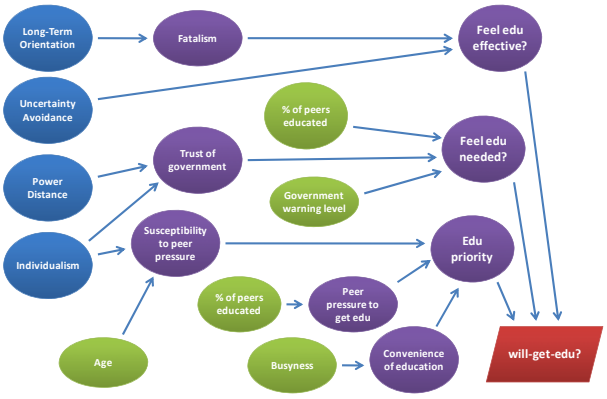


Figure 8. Casual influence network of variables affecting a decision about seeking earthquake education

7. EARTHQUAKE SCENARIO

For this scenario we will focus upon the inner East Bay area, specifically the city of Fremont. The inner East Bay area is generally urban, densely populated and ethnically diverse, with older building construction. As of 2009, Fremont's total population was 213,000 people grouped into 68,000 households. The demographic groups of the City of Fremont are:

- Non-Hispanic Whites 32.0%
- Asian-American 48% (mostly Afghan community)
- Hispanic/Latino 14%
- Other 6% (U.S Census Bureau)

In this scenario, a 7.5 magnitude earthquake occurs in the San Francisco Bay Area, with the epicenter located along the Hayward Fault zone. The Hayward Fault is a dangerously unstable fault that runs along the Eastern hillside of the San Francisco Bay Area, one of the most densely populated areas of the state. The Hayward Fault runs beneath homes, schools, hospitals, and the UC Berkeley campus.

The earthquake will disrupt normal community life and services. The vast majority of the city will lose electricity for the first 12 hours after the earthquake. Hospitals, senior centers, and civic places will maintain a minimal source of electricity via generators. Gas pipes are damaged as are telephone lines. In a few high-traffic intersections, natural gas lines rupture causing major structural fires, and damaged water lines complicate extinguishing these fires. Furthermore, a greater threat to the population's water supply is possible damage to the Bay Division Pipelines (BDPL). The City of Fremont is the point where the Hetch Hetchy Aqueduct, which provides water to San Francisco from the Tuolumne River (Yosemite National Park), splits into four separate Bay Division pipelines. All four of these pipelines run across the Hayward Fault.

The seismic shock would induce soil liquefaction which damages the foundation of some old buildings.

ISBN 978-88-903724-3-8

Additionally, "soft-story" buildings not retrofitted before the earthquake are particularly vulnerable. These are typically classic apartment buildings with a store or restaurant on the first floor or "tuck under" parking. It is not uncommon for soft-story buildings to house a substantial number of residents living in affordable or low-income units. Residents of these buildings will be displaced and most will be dependent on emergency housing.

Subsequent aftershocks: there are 70 with magnitudes higher than 3.0 in the immediate 24 hours following the earthquake; 30 more the second day after the earthquake.

The theoretical framework used in this earthquake simulation was built upon Geert Hofstede's Five Cultural Dimensions. In this report, an overview of the Five Cultural Dimensions and the cultural profiles used in this simulation are provided.

8. MODEL IMPLEMENTATION

The simulation created as part of this project is an agent-based model built within the freeware Java-based framework NetLogo. NetLogo supports rapid prototyping of multi-agent simulation systems with built-in GUI user controls, plus graphing, and visualization tools.

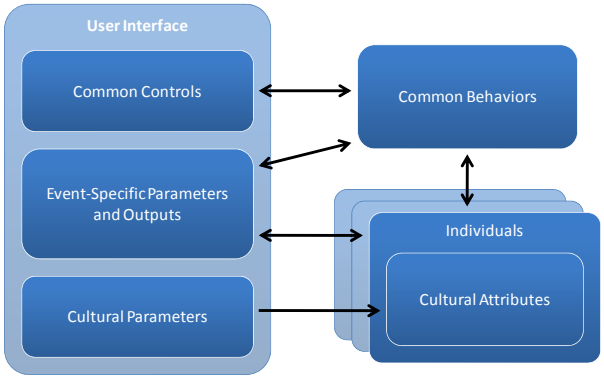


Figure 9. Basic modular NetLogo model architecture

The earthquake model itself is created using a modular architecture that supports the exchange of cultural and event elements (see Figure 9). It is an extension of the earlier flu-simulation work of this IRAD in which the non-flu-specific components have been generalized, with the earthquake elements substituted as an exchangeable module. Additionally, cultural function elements are separated into an exchangeable module, and the user-configurable frontend offers sliders that control the value of the various independent variables for up to three distinct simulated cultures. Figure 10 shows a screenshot of the user interface, which supports numerous experimental adjustments before and during execution.

Figure 10. Netlogo Model User Interface (Phase II)

9. CONCLUSION

In this project, we explored the representation of cultural and psychological attributes as agent variables that will guide the agent behavior and decision-making. In this project we focused on agent-based models of a community responding to a crisis. An important focus of this work was the representation of a crisis as a modular set of events with a context. We developed a design approach that will allow different crises to be inserted or overlaid upon the agent-based community to explore the community response to the crisis. These approaches can be used to develop agent-based models that could be used by crisis response and preparation planners to forecast the behaviors of a community under different sets of conditions. The planners could explore approaches to communication, crisis education, preparation instructions and instructions during a crisis and could then tailor interactions with the community in a way that is most effective for the multiple cultures involved.

Potential next steps for continuing this research include developing approaches to modeling various forms of communication so that planners could explore the impacts of e.g.,

- authoritative versus non-authoritative information sources,
- agent-to-agent versus broadcast distribution of information
- government sources versus cultural leaders.

In addition the model should be extended in the simulation time horizon to include post-disaster reconstruction. This would allow a modeling approach to support policy makers in evaluating the impact of cultural influences in reconstruction programs in the long-run.

Another important next step would be characterization of potential emergencies and crises in terms of representation by a set of features and the development of an overlay template that could more easily be used to represent and insert a new crisis into the agent community.

ISBN 978-88-903724-3-8

o

10. APPENDIX: SAMPLE CULTURAL PROFILES

These profiles were used to instantiate the core cultural variables before model execution.

10.1. Afghan Cultural Attributes

- Likely to hold a fatalistic orientation which may cause an individual to accept circumstances as "God's will (COP 2002).
- Highly distrusting of anyone who is not a kinsmen even of other Afghans. (CHANGE 2008: 50, Braakman 2005:30)
- Use of religion to spiritually reinterpret life events (Omeri, A., C. Lennings and L. Raymond. 2004)
- Familiar with Adversity (Omeri, Lennings, and Raymond 2004; SAFE 2003)
- High degree of resilience among 1st generation immigrants and elderly segment of Afghan community. This is due to the great amount of adversity they have experienced during lifetime. (CHANGE 2008: 51, Monsutti 2008: 1))
- Potential for some degree of Abseenteism (on Friday)) to attend Mosque and visit family. (Lipson and Omidian 1992: 272)
- Higher rate of "homeboundess" of women and elderly due to social isolation and lack of English speaking skills. (Lipson and Omidian 1992:272)
- Obsessed with cleanliness. "Concepts of purity and impurity are integrated into ideas of health and disease." (Lipson and Omidian 1992: 273)
- High level of suspicion of public authorities due to their negative experiences of the state and highly stratified society (CHANGE, 24)
- Hierarchical and patriarchal culture. Due to the fact that Afghan diplomas are rarely recognized outside of Afghanistan, many Afghan men have had to take "lower-class employment" and have to depend on their children who learn English quicker. These two factors have contributed to Afghan men's "loss of authority." Likewise, older generation find themselves more dependent on the younger generation (Braakman 30)
- High degree of collectivism. An individual is a representative of his/her family not an independent individual (Braakman 85)
- High incidence of social and religious conservativism. While not all Afghans were conservative during their time in Afghanistan, some liberal individuals in the Diaspora become "conservative" because this is closely associated with being "Afghan." (Braakman 86; Nawa 2001). However, some conservative Afghans shed this aspect of their identity in order to better integrate into their new environment.
- High degree of Social Conformity. Afghans gossip a lot. They do not want to appear "un-Afghan" or *azad* "free." The notion of social conformity among the Afghan Diaspora is closely linked to the preservation of an individual's reputation but ultimately the family name and honour (Braakman 2005:86). This reflects the "honour-shame" orientation of the Afghan culture.

10.2. Latino Cultural Attributes

- In general, Latinos place a high value on interpersonal relationships. *Respeto* refers to a quality of self that must be presented in all interpersonal relationships.6 It signifies attention to proper and moral behavior and indicates an expression of deference to the person one confronts (NC Latino Health 2003).
- Trust is an important cultural value tied closely with respect. Trust is built on mutual respect over time (NC Latino Health 2003)
- Latinos place a great deal of importance on the family as the primary social unit and source of support for individuals. Help and advice are usually sought from within the family system first, and important decisions are made as a group (NC Latino Health 2003). Some consider "familismo " is an extreme form of collectivism (Perilla, Norris, Lavizzo 2002).
- *Machismo*: Traditionally the Latino male has been acknowledged as the authority figure in the family (NC Latino Health 2003)
- View of life and death; the individual perceives little personal ability or responsibility for success or failure in life (external locus of control). The person feels that control over what has happened and what will happen has an external locus, and hence is wholly out of his or her hands (NC Latino Health 2003).
- Latinos are generally more concerned with the present than with the future. Priority is given to current activities rather than planning ahead. Thus, being late for an appointment is not due to lack of respect or reluctance, but to priority and concern over current activity or personal Interaction (NC Latino Health 2003).
- *Simpatia* calls for positive interpersonal relationships (Padilla 2002).

10.3. Anglo American Cultural Attributes

- Individualistic: Social ties between an individual and in-groups are much looser. An individual seeks his/her well-being and their nuclear family. Competition is regarded higher than cooperation. (Weaver 2001, Hofstede 1980)

ISBN 978-88-903724-3-8

- Egalitarian: Americans believe that all persons are equal in status and should be given an equal opportunity to better themselves. Furthermore, a person is not born with a high social status but rather an emphasis is placed on individual achievement (Weaver 2001). An individual's status is based on what s/he does not his/her family or heritage.
- Independent relationships. Due to the individualistic cultural attribute, Americans seek to be self-reliant. Extended family does not play role in major decision-making. (Hong, Ip, Chiu, Morris and Menon 2001).
- Time Orientation: Anglos value timeliness and planning ahead. Time is linear, sequential, absolute, and prompt (Redding 1980 cited in Kirkbride, Yang, Westwood 1991).
- Open and direct communication
- Personal Responsibility

11. BIBLIOGRAPHY

Afghanistan Culture. 2009. Available from: http://www.about-afghanistan.com/afghanistan-culture.html

Braakman, M., 2005. *Roots and Routes: Questions of Home, Belonging, and Return in an Afghan Diaspora*. M.A. Thesis. Leiden University. Available at: http://www.ag-afghanistan.de/files/braakman_roots_a_routes.pdf

Brannon, C., 2007. "Cultural Competency: Values, Traditions, and Effective Practice." *Nutrition Dimension*.

Hanifi, M. J., 2000. "Anthropology and Representation of Recent Migrations from Afghanistan," in *Rethinking Refuge and Displacement: Selected Papers on Refugees and Immigrants*. Volume VIII. American Anthropological Association: Arlington. Available from: http://www.farda.org/english/articles/j_hanifi/Refugee.pdf

Hofstede, G., 1980. "Motivation, Leadership, and Organization: Do American Theories Apply Abroad?" *Organizational Dynamics*.

Hofstede, G., 1984. "The Cultural Relativity of the Quality of Life Concept." *The Academy of Management Review*.

Hofstede, G., 1980. *Culture's Consequences*. London: Sage Publications.

Lipson, J.G., and Omidian, P. A., 1992. "Health Issues of Afghan Refugees in California," in *Cross-Cultural Medicine- A Decade Later (Special Issue) West J Med*, Sep 157:271-275. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1011275/pdf/westjmed00085-0061.pdf

Monsutti, A., 2008. "Afghan Migratory Strategies and the Three Solutions to the Refugee Problem," *Refugee Survey Quarterly*. Available from: http://graduateinstitute.ch/webdav/site/executive_education/shared/executive_education/summer_international-affairs_faculty-IA_professors/A%5B1%5D.MONSUTTI-RSQ-AM.pdf

Morioka-Douglas, N., Sacks, T. and Yeo, G., 2004. "Issues in caring for Afghan American elders: Insights from literature and a focus group," *Journal of Cross-Cultural Gerontology* 19: 27-40.

Nawa, F., 2001. "Out of Bounds: Afghan Couples in the United States: A Study of Shifting Gender and Identity." Aftaabzad Publications: San Francisco. Available from: http://www.faribanawa.com/outofbounds.pdf

NC Latino Health. 2003. "Cultural Factors and the Health of North Carolina Latinos."

Office of Minority Health of Rhode Island Department of Health. "Latino Culture and Health." Available at: http://www.health.ri.gov/chic/minority/lat_cul.php

Omeri, A., Lennings, C. and Raymond, L., 2004. "Hardiness and Transformational Coping in Asylum Seekers: The Afghan Experience" *Diversity in Health and Social Care* 1:21-30.

Perilla, J., Norris, F., and Lavizzo, E., 2002. "Ethnicity, Culture, and Disaster Response: Identifying and Explaining Ethnic Differences in PTSD Six Months after Hurricane Andrew." *Journal of Social and Clinical Psychology*, Vol. 21, No.1, pp20-45.

Rubel, A. J., 1960. "Concepts of Disease in Mexican-American Culture." *American Anthropologist* Vol. 62, No.5, pp. 795-814. Available from: http://www.jstor.org/stable/667103

Sadat, M. H., 2008. "Hyphenating Afghaniyat (Afghanness) in the Afghan Diaspora," *Journal of Muslim Minority Affairs* Vol. 28, No.3.

SAFE (The Sabawoon Afghan Family Education and Counseling Centre). 2003. "Exploring the Mental Health Needs of Afghans in Toronto." Available from: http://ceris.metropolis.net/Virtual%20Library/EResources/SAFE2003.pdf

The Cultural Orientation Project (COP). 2002. "Afghans-Their History and Culture," Available from: http://www.cal.org/co/afghan/aval.html

U.S. Census Bureau. 2006. "Fremont Ethnicity." Available from: http://www.fremont.gov/DocumentView.aspx?DID=843

United Kingdom (Department for Communities and Local Government). 2009. "The Afghan Muslim Community in England: Understanding Muslim Ethnic Communities," Published by The CHANGE Institute. Available from: http://www.communities.gov.uk/documents/communities/pdf/1203127.pdf

Weaver, G., 2001. "American Cultural Values." Kokusai Bunka Kenshu (Intercultural Training), Special Edition, 1999, pp.9-15.

ISBN 978-88-903724-3-8