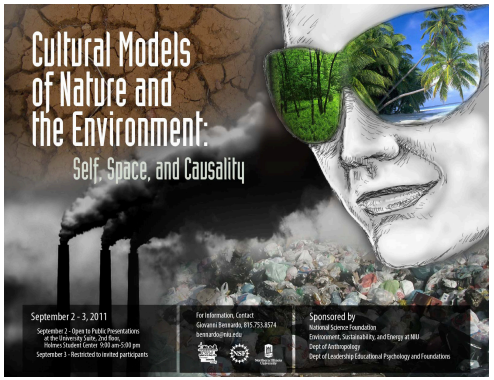
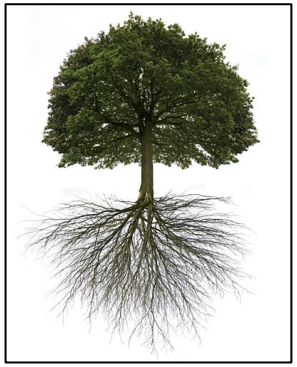


SASci 10th, Albuquerque, March 22, 2014

Cultural Models of Nature Across Cultures

Giovanni Bennardo
Northern Illinois University

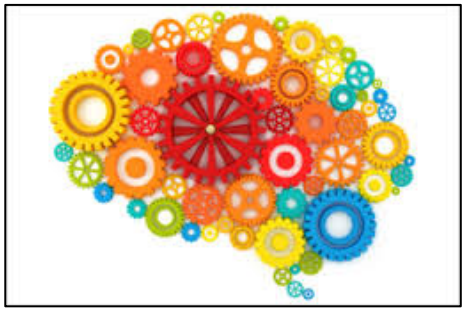
Can research on mental content and architecture be useful in helping the implementation of policies generated by the impact of climate change?
In this presentation I suggest a possible path toward a positive answer.
Mental representations of spatial relationships are conceived as fundamental to the construction of various domains of knowledge organized in cultural models.



ROOTS

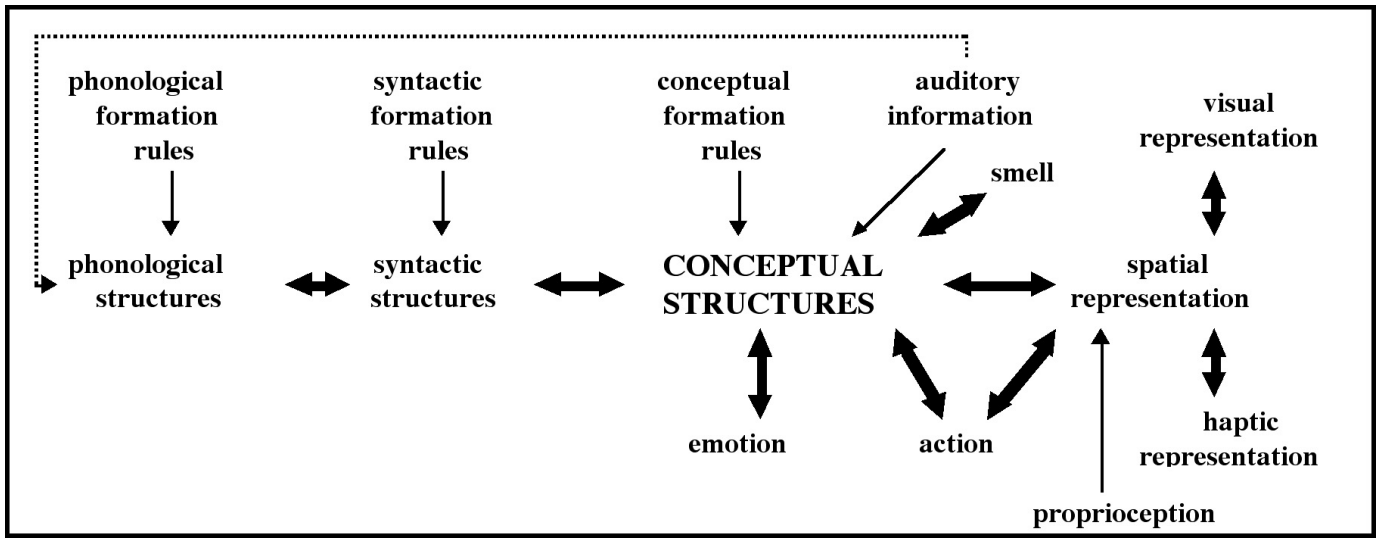
The NSF supported project entitled
Cultural Models of Nature Across Cultures
is rooted on the following areas of research:

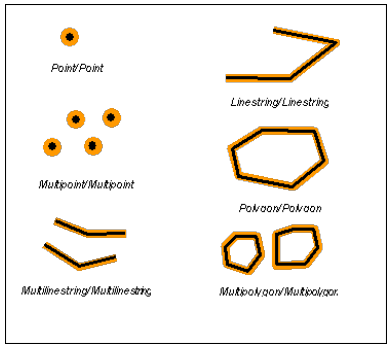
Mental Architecture
Spatial Relationships
Cultural Models
Climate Change
Indigenous Knowledge (IK and/or TEK)
Policy Making



Mental Architecture

Among the many existing proposals for mental architecture,
I adopted the one suggested by Jackendoff (2002, 2007).
His proposal is relevant to the project because
it suggests a mental module for '*spatial representations*'
separate from the central '*conceptual structures*' module.

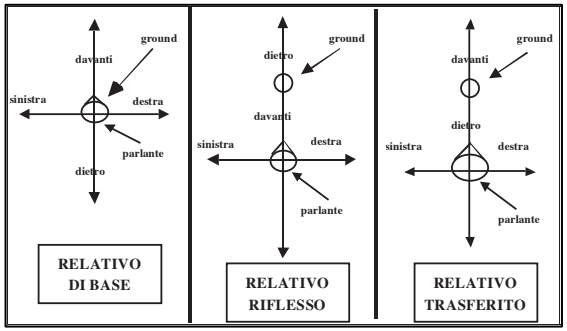




Spatial Relationships

The content of the *spatial relationships* module has been extensively studied and a fundamental part of such content is the concept of Frame of Reference (FoR) (Levinson, 2003; Bennardo, 2009).

A FoR is a set of coordinates that generates an oriented space within which relationships between objects are established. There are three types of FoR that typically share the vertical axis and differ on the horizontal plane. They are: the *relative* FoR, the *intrinsic* For, and the *absolute* FoR.



Types of Frames of Reference

A ***relative*** FoR is centered on a speaker (left-right and front-back axis) and it remains centered on the speaker when the speaker moves, e.g., "The ball is in front of me."

An ***intrinsic*** FoR is centered on an object and it remains centered on the object when the speaker moves, e.g., "The ball is in front of the car."

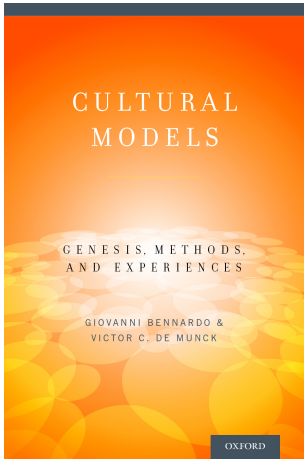
An ***absolute*** FoR uses conventionalized and fixed points of reference within a speaker's spatial field, e.g., north, south, east, west, as in "The town is south of the river."

Spatial Relationships and Cognition

The content of the spatial relationships module has been widely proposed as being foundational to the development of both language and cognition

Clark (2011); Talmy (2000); Mandler (2004, 2008); Mix, Smith, and Gasser (2010); Schubert and Maas (2011); Tversky (2011); Landau and Hoffman (2012)

It is for this reason that we propose that
preferences in representing spatial relationships (FoR)
will be replicated in other domains of knowledge (see Bennardo, 2009),
insofar as spatial relationships contribute substantially to the development of cognition.



Cultural Models

Knowledge is mentally organized in models (Johnson-Laird, 1983, 1999)
whose contents are often significantly shared within communities.
This latter type of models have been called ***Cultural Models***
(Holland and Quinn, 1987; D'Andrade and Strauss, 1992; Quinn, 2005;
Bennardo and De Munck, 2014).

Then, considering the suggestions
from the research on spatial relationships,
it is plausible to hypothesize that
preferred representations of spatial relationships
might play a constructive role
in the generation of cultural models within one's mind and community.

Climate Change

Climate change is one of the most challenging issues that we are collectively facing insofar as it threatens the survival of our species.
It is without doubt that before long extensive action,
beyond those initiated over the past two decades, will have to be implemented worldwide to try to minimize its potential and disastrous effects.

The populations most at risk from the effects of climate change are obviously those whose livelihood depends on daily contact with the changing physical environment.
Primary food producers best represent these kinds of populations:
e.g., farmers, fishermen, or herders.

The whole world population is at risk and we all will be obliged to change our behavior to make our presence on the planet sustainable (see Moran, 2006, 2010).
However, the daily and close contact with the environment by primary food producers makes them most directly affected by the effects of climate change.
Besides, they are the primary actors who will likely implement whatever new and/or radical remedial policies are proposed.

Indigenous Knowledge (IK and/or TEK)

The policies to respond to climate change stressors may be
locally generated as a community response to local environmental degradation
or they may be suggested and imposed nationally or internationally
by political and economic bodies whose knowledge of local realities,
including Indigenous Knowledge (IK)
and Traditional Environmental Knowledge (TEK),
is typically lacking, insufficient or worse, disregarded.

(Kempton, 2001; Theodossopoulos, 2003; Medin, Ross, and Cox, 2006;
Medin, Ross, Cox, and Atran, 2007; Lauer and Aswani, 2009;
Guneratne, 2010; Metz, 2010)

Policy Making

Acquiring knowledge about IK and TEK
would contribute to the construction of policies
(devised to face environmental stressors linked to climate change)
sounder in their content,
easier to be accepted by local population,
and eventually implemented with the urgency and passion
needed to remedy the current situation.

(for examples of successful projects see
Appiah-Opoku, 2005; Wallace, 2006;
Casimir, 2008; and Vayda, 2009)

Cultural Models of Nature in Primary Food Producers

A fundamental part of any IK or TEK is a ***cultural model of nature*** that generates behavior, that is, specific responses to environmental stressors such as climate change.

As already stated, the populations most exposed to the direct impact of climate change stressors are primary food producers whose lives (and not only theirs) depend on direct contacts with natural environments.

Thus, one of the major foci of our current research is
on communities of primary food producers.
The research aims at discovering their cultural models of nature.
At the same time, it aims at discovering preferred modality
of mentally representing spatial relationships
so that a possible correlations of such modalities
with specific types of cultural models of nature
could also be discovered.

Participants

PI. Giovanni Bennardo, Anthropology, Northern Illinois University (Kingdom of Tonga and Italy)

CoPI. Andrea Bender, Psychology, University of Freiburg, Germany (Germany)
CoPI. James Boster, Anthropology, University of Connecticut (Amazonia, Peru)
CoPI. Victor DeMunck, Anthropology, SUNY La Paltz (Lithuania)
CoPI. John Gatewood, Anthropology, Lehigh University (Pennsylvania, US)
CoPI. Eric Jones, Anthropology, University of North Carolina, (Ecuador)
CoPI. Stephen Lyons, Anthropology, University of Durham, United Kingdom (Pakistan)
CoPI. Justus Ogembo, Anthropology, University of New Hampshire (Kenya)
CoPI. Anna Maria Paini, Anthropology, University of Verona, Italy (Italy)
CoPI. Hidetada Shimizu, Educational Psychology, Northern Illinois University (Japan)
CoPI. Thomas Widlok, Anthropology, University of Cologne, Germany (Namibia)
CoPI. Katharine Wiegele, Anthropology, Northern Illinois University (Philippines)
CoPI Senior Personnel, Fadwa El Guindi, Qatar National Research Fund, Qatar Foundation (Qatar)
CoPI, Wenyi Zhang, Anthropology, Sun Yat-Sen University, Guangzhou, China (China)
Research Assistant, Elisa Bellato, Anthropology, University of Verona, Italy (Italy)

Doctoral Student, Zeb Aurang, Anthropology, at University of Durham, UK (Pakistan)
Doctoral Student, Psychology, at University of Freiburg, Germany (Germany)
Doctoral Student, Anthropology, at University of Cologne, Germany (Namibia)
Doctoral Student, Social Sciences, at Qatar University (Qatar)
Master Student, Anthropology, at Northern Illinois University, (Tonga)
Master Student, Anthropology, at Northern Illinois University, (Philippines)

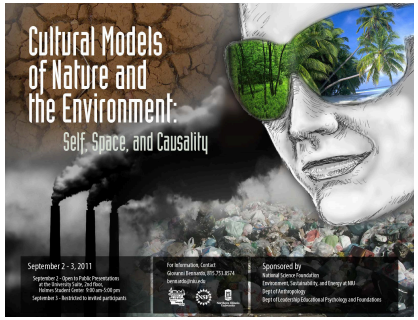
Field Sites


RUSSIAN FEDERATION
CANADA
UNITED STATES OF AMERICA
CHINA
INDIA
AUSTRALIA
BRAZIL
NORTH ATLANTIC OCEAN
NORTH PACIFIC OCEAN
SOUTH PACIFIC OCEAN
INDIAN OCEAN
SOUTH ATLANTIC OCEAN
SOUTHERN OCEAN
ARCTIC OCEAN
THE WORLD
PACIFIC CENTRED

Field Sites Characteristics

Table 1. Field Sites and Broad Sources for Variation in Cultural Models.

Site	Settlement Pattern	Major Productive Activities	Notable Environmental Changes
Tonga	Small coastal village	Horticulture, fishing, gathering	Rising sea water; decreased fish availability
Germany	Two river valley villages	Perennial fruits	Temperature increases; flooding; plant diseases
Peru	Small riverine foothills settlements	Horticulture	Land desiccation; decreased game availability; decreased crop varieties
Lithuania	Small city in hills	Small-scale agriculture and dairy; gardens;	More extreme seasons; flooding; increased temperatures
United States	Rural river valley	Industrial and small-scale agriculture and dairy	Flooding; increased temperatures; erratic weather
Ecuador	Rural mountainside	Small-scale agriculture	Reduced glaciation; greater aridity; change in crops produced (less native)
Pakistan	Small village in hills	Irrigated and non-irrigated agriculture	Reduced groundwater; erosion
Kenya	Fertile highlands village	Small-scale agriculture	Desertification; changing weather patterns
Italy	Small mountain village	Gardens; pastures	Increased temperature; reforestation
Japan	Village on hillside	Yams; plums	Weather extremes
Namibia	Rural desert	Hunting; gathering; cattle; farm labor	Reduced forage; aridity/drought
Philippines	Two coastal villages	Fishing	Decreased fish availability; reef damage; reduced fish nursery habitat
Qatar	Desert cities	Wage labor	Rapid urbanization, but continued kin focus
China	Five mountain villages	Hunting; gathering; forestry; livestock; horticulture; small-scale agriculture	Drought; more commercial crops



Common Methodology

During an NSF sponsored workshop held at Northern Illinois University
on September 1-4, 2011 and entitled
Cultural Models of Nature and the Environment: Self, Space, and Causality,
we agreed on a common methodology for the research project
which includes qualitative and quantitative strategies.

Data Acquisition Methods include:
Participant Observation, Nature Walks,
Open-Ended Interviews, Semi-Structured Interviews, Questionnaires,
Space Tasks, Free Listings, Pile Sorts, Frame Elicitations,
Memory Tasks, Drawing Tasks, Rating Tasks.

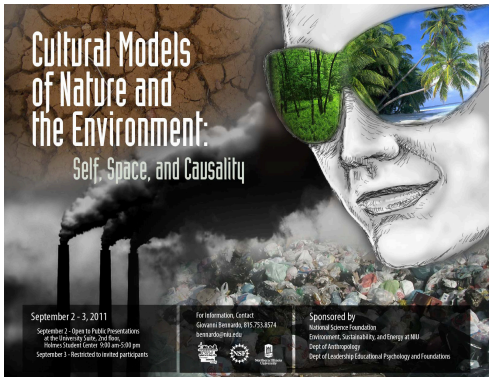
Analysis Strategies include:
Key Words, Semantic Roles, Metaphors, Gist, Reasoning,
Frequency, Correlation, MDS, Clustering, Consensus Analysis.

Status of Data Acquisition and Analysis

- Some researchers have finished the data acquisition in the field and they are currently at their home institution analyzing data (Steve and Anna/Elisa);

- Some researchers are currently in the field (Katie and Tom);

- Some researchers will be going to the field in the summer (May-August) (all others).

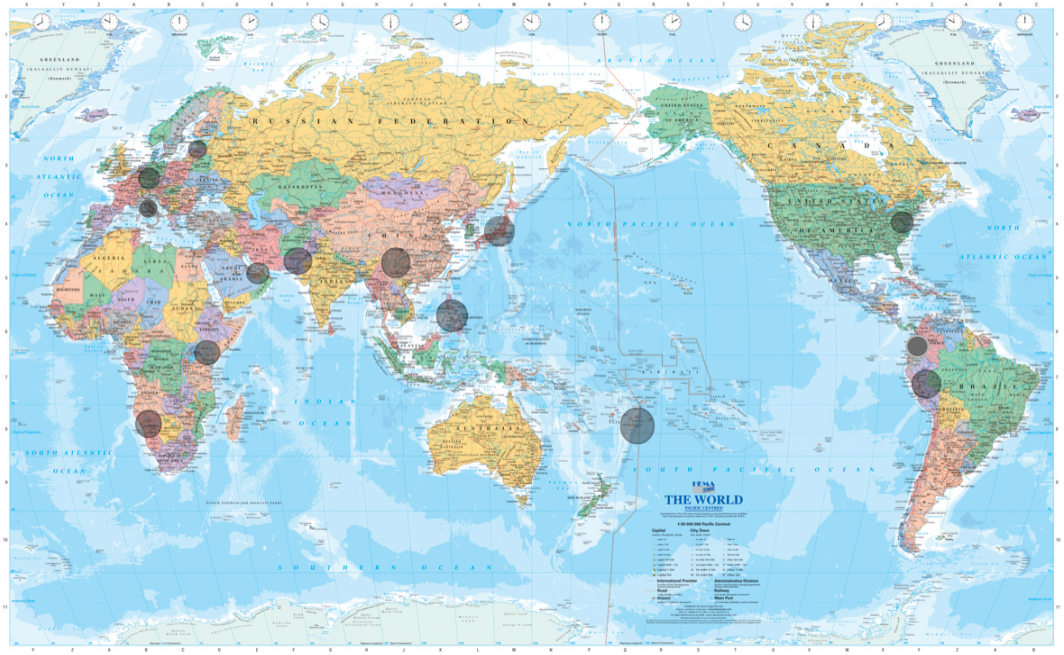


Post-Fieldwork Workshop

When all researchers are finished analyzing their data,
I will organize a second workshop within which
the results of those analyses will be presented and
the second stage of the research project will be planned.
Specifically, we will agree on a second set of data
acquisition strategies and data analyses.

The research is open to contributions/participation.

Add a dot to the world!



Thank You