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Detection of Outside Threat in Different Cultures: Ecological, Cultural  
and Cognitive Factors of Effective Influence

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**Final Report**

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## Final Report

**Grant Title:** “Detection of Outside Threat in Different Cultures: Ecological, Cultural and Cognitive Factors of Effective Influence”

**Grant #:** FA9550-10-1-0443

**Reporting Period:** 8/1/10 to 7/31/12

**PI:** Pascal Boyer, Washington University in St. Louis

**Subcontractor:** Pierre Lienard, University of Nevada, Las Vegas.

**Changes in AFOSR program manager:** Terry Lyons in charge until 3/31/11, Joseph Lyons in charge from 4/1/11.

**Discoveries, patents:** NONE

### 1. Summary

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- This is the final report concerning research on Grant FA9550-10-1-0443, under the AFOSR-BAA-2009-1 “Socio-Cultural Modeling of Effective Influence” program.
- This project focused on cross-cultural aspects of threat-detection, i.e. how people in different cultures have similar/different ways of construing the impact of such potential dangers as enemy groups, pollution and contamination, predators, etc.
- The PI and the sub-contractor undertook research for two years on this project. Several publications report on this research, the main results of which are presented in section 5.
- The third year funding of this grant was cancelled on 6/1/12. Section 6 below reports on the circumstances of the cancellation.

### 2. Original proposal and modifications in view of AF-OSR recommendations

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#### *Research as described in original grant proposal*

This was a three-year basic research project (psychology, anthropology) by researchers from Washington University (St. Louis) and U of Nevada (Las Vegas).

- Main theme: the way people in different cultures detect potential social threats – aggression from outsiders, defection from tribal/village solidarity, enemy presence, predators, natural disasters and economic uncertainty.

- Specific focus: how this perception of external threats is affected by ecological, socio-cultural and cognitive factors.

- Proposed methods included ethnographic surveys and cognitive psychology experiments.

The project addressed one component of *effective influence*, popular reactions to political or ecological change that take the form of rumors and other informal information

about potential threats (new diseases, pollution, contaminants, political upheaval, military operations, etc.) Such unofficial information can quickly spread and motivate people to participate in social movements, insurgency, riots or, on the contrary, cooperation with existing institutions.

#### *Modifications suggested by Program Manager*

After the grant was authorized, in August 2010, the PI was advised by the Program Manager's office that work with human subjects outside the USA would *not* be approved by OSR during the first year of the project, so that research during that first year should focus on testing protocols within the US, for extension during the second year.

### 3. Research – Year 1

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1. As a result of the changes mandated by AF-OSR, we focused the first year of research on background cross-cultural evidence. The point of this preliminary research was to create a data-base for the relative salience of different kinds of threats in different cultural environments. The motivation for this comparative study was [a] to provide information about which kinds of threats were likely to be most represented in our different ethnographic samples, and [b] to provide more general useable information about cultural differences in the domain.

2. P Boyer also started running pilot versions of the questionnaires in study AFO1 in the US. The aim of these first pilots was to adjust the phrasing of test-items to both memory constraints in participants and to potential cultural differences. The final questionnaire included common items to do with family relation (how much trust and cooperation within the group and outside the group), as well as site-specific items to do with local institutions (how much protection from threat is provided by police, justice, other authorities, etc.).

3. We created a specific instrument to study the connections between economic uncertainty (how much people think their economic circumstances are predictable) and social uncertainty (how much people expect to help others and receive help from them). Specifically, we combined [a] standard measures of delay-discounting (people are offered choices between various amounts of money *now* and various larger amounts *later*: this provides a quantitative estimate of uncertainty about the future); and [b] a measure of “social discounting” (people are offered choices between allocating money to themselves and larger amounts to others, at different degrees of social distance). The main idea here is that the combination of these two measures would provide a more precise understanding of “social capital” than standard measures: with our instrument, we can specify, not just how much people can depend on others, but also how this depends on their own uncertainty about the future).

4. December 04, 2010 – January 16, 2011 and May 24, 2011 – June 16, 2011, Subcontractor Dr Pierre Lienard (University of Nevada) established a new ethnographic site in Kenya with two research stations, in nomadic camps and town settlements respectively, and carried out preparatory fieldwork on ecological and social conditions likely to induce threat-detection: in particular ecological variance (droughts), political threats (due to

geo-political situation of Kenya) and patterns of solidarity and cooperation as a palliative to uncertainty in these two domains.

#### 4. Research – Year 2

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1. P Boyer carried out systematic testing of modified questionnaire studies with various populations. The questionnaires used included three parts, to do with future discounting, “social” discounting (as a proxy for levels of cooperation), and trust in institutions.

2. P Boyer and P Lienard designed an additional instrument to measure threat from social groups. An important component of people’s perception of safety is their construal of other social groups (ethnic groups, nations, “races”, etc.) as either simply different or potentially hostile. This is an important difference for “effective influence”, as the latter kind of group-difference is much more likely to result in violent outbursts such as ethnic riot, and affect participation in ethnically-based movements and insurgencies. We designed a task that measures the perceived threat from groups in an *implicit* manner (people are not aware that this is what the task is about). Subjects are asked roughly to estimate *how many* people are included in a particular picture of a scene. Previous literature on threat-detection suggests that people would have a tendency to over-estimate the number of threatening objects or people they see, but not of non-threatening ones.

3. Subcontractor Dr Pierre Lienard (University of Nevada) pursued work on Kenya during one fieldwork visit, December 10, 2011 – January 09, 2012. During this period he used the questionnaires developed in Year 1 in the two field sites previously studied, one in nomadic camp conditions and the other one in the town of Kalobeyei. The questionnaires included [a] measures of delay-discounting (uncertainty about the economic future), [b] social discounting (extent to which people expect cooperation), and [c] institutional trust (the extent to which some uncertainty can be palliated by help from authorities, police, etc.)

4. P Boyer and P Lienard submitted plans for similar studies with very different populations, of special relevance to the questions addressed in this research. [a] We wanted to include another field site, in South Africa, where P Boyer had been doing preparatory fieldwork (not on AF-OSR funding), because patterns of economic uncertainty and inter-group relations are different enough from both Kenya and the US to be of theoretical importance. [b] We asked for approval for studies with Air Force personnel in different bases, at different stages of their careers and with different experiences of deployment and activity in different cultures. The point was to evaluate to what extent personnel are aware of differences in threat-perception between cultures, and how this affects “effective influence” in foreign terrain. Several months after our initial requests, these were not considered anymore as the 3<sup>rd</sup> year of the grant was cancelled (see below section 6).

## 5. Scientific results

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The results of our studies focus on two important questions to do with threat-detection in different cultures:

[1] *What is the connection between economic uncertainty and group-level cooperation?*

In many countries in the world, an important domain of uncertainty and perceived threat is the extent of cooperation with others and the way it can palliate economic uncertainty. This is usually measured in terms of “generalized trust” (whether people think others are reliable and cooperative) and “social capital” (how many cooperative relationships people can count on). But these measures are known to be unreliable, and their quantitative results are imprecise. To remedy this, we used a combination of instruments measuring [a] people’s willingness to invest in the future, [b] their willingness to invest in others, and [c] their trust in institutions, both local and national. Our results suggest that these measures capture deep differences in economic attitudes that are not detected by standard measures of generalized trust.

We compared Kenya and US sites, as well as a China site (not funded by AF-OSR research). Delay discounting results are consistent with previous evidence of very steep discounting in Africa and fairly steep rates in China, compared to the USA. The results also show clear differences in social discounting. There is however a clear dissociation between future- and other-regarding attitudes. Chinese participants show both high other-regarding preferences (like US, unlike Kenya) and low future-regarding preferences (like Kenya, unlike US). This provides an empirical confirmation to the suspicion that generalized trust is at best a poor measure of economic attitudes. The origin of these differences cannot be found in estimates of how much help people can expect from known others, a precise measure of “social capital”, which were similar in our three sites despite enormous economic and institutional differences. Cultural differences are more consistent with different histories and ecologies. Turkana pastors live in a high-uncertainty environment, including recurrent droughts and raids from enemy tribes, as well as intra-tribal rivalries. Our Chinese participants have experienced massive economic growth and market integration, with a widespread perception that local institutions cannot be trusted.

[2] *How can we measure perceive threat from other social groups?*

We ran studies on this important component of ethnic and other group-level relations: Is another group perceived as simply “different” or as clearly threatening? The practical relevance of this question is obvious, as perceiving a group as a threat is an important motivation in insurgencies, social protest and ethnic riots. In our studies, using the instrument created for this purpose, US participants gave a numerical estimate of an array of faces presented too briefly for verbal counting. White American participants tended to estimate arrays of African-American male faces as more numerous than arrays of White faces. Over-estimation of African-Americans disappeared if the faces were female, or were presented upside-down, but persisted when the control stimuli were Asian faces. This is consistent with a social threat model, following which African-American

males are represented by White American subjects as (potential) members of a hostile coalition. As the threat from an enemy coalition varies directly with its size, error-management theory would predict the observed bias towards over-estimating the number of individuals encountered, a previously undetected low-level effect of social categorization.

This is an important, previously undetected low-level effect of social categorization. When people say that there are “too many” of the particular out-groups they dislike, they may be expressing a particular sense of threat that they are not entirely aware of. In practical terms, this kind of instrument provides a very convenient, implicit and therefore not politically awkward way of measuring levels of suspicion towards a particular social group or a new group like foreign personnel. Plans to extend these studies to Kenya and South Africa were interrupted by the cancellation of the grant (see section 6 below).

## 6. Cancellation of the grant

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### *Clerical issues*

On 2/3/12, the PI’s research assistant made a clerical error and reported to the Washington University IRB that she had tested 30 subjects for a study called “AF01”. This was in error, as she had actually given them the questionnaire materials for another study, called “AF21”.

On 2/25/12, she signaled to the IRB that this was a clerical error as the materials were actually for study AF21.

On 3/14/12, the IRB office told us they would investigate our Air Force study AF21. A few days later, the team then told us they would extend this investigation to other studies. We were enjoined to produce consent forms and enrollment logs, dating back to 2004, on studies that were unrelated to the AF-OSR grant.

On 5/8/12, the IRB “quality assurance” team let us know they had found exactly five instances of clerical errors over the last 12 years in our lab’s reporting of human subjects, and had determined that this was a “situation of non-compliance”. I was enjoined to write a letter of confession and submit a plan for “corrective action”. The IRB team also wanted a complete explanation of all research activities conducted on Air Force money.

Subcontractor P Lienard was asked by the University of Nevada IRB to provide evidence for consent forms and enrollment logs in his studies.

### *Grant cancellation*

On 6/1/12, The PI (P Boyer) received an email from the grant manager at AF-OSR:

“In light of the recent report that was sent to the Office of Human Research Protections (OHRP) regarding your noncompliance to the ethical guidelines instituted by the IRB at the University of Washington [sic], I’m afraid I have no choice but to cancel your current AFOSR grant. [...] If an adverse event were to occur in your research (even an unintended one), that would reflect negatively on me as a Program Manager for failing to

act, and could be costly for both myself and AFOSR in their existing and future human subjects research.”

On 6/12/12, the program manager sent further precisions about the funds:

“If my memory serves me correctly your current increment will go until August, so I would try to spend what you have left of this current increment knowing that the last increment of 142K will not be coming.”

We have received no other communication from the Air Force, except a request from accounting services to send them our financial report as soon as possible.

## 7. Publications supported by this grant:

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Boyer, P, Lienard P, Xu J (2012). Cultural Differences in Investing In Others And In The Future: Why Measuring Trust Is Not Enough, *PLoS One* 7(7): e40750.

Link to [PDF](#)

Boyer, P, Petersen, MB, (forthcoming 2012). Studying institutions in the context of natural selection: Limits or opportunities? *Journal of Institutional Economics* 9(x): xxx-xxx.

Link to [PDF](#)

Boyer P, Lambert A, Christner J (under review), “Too many outgroups? Effects of social threat on numerical estimation”.

Link to [PDF](#)

Boyer, P, Lienard P (in prep), Comparative evidence for threat-related cognitions in the domains of disease and other threats from the HRAF data-base.

Lienard (in prep). Trust in Institution in Rural and Urban Turkana populations.