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A Cultural Models Approach for Investigating the Cognitive Basis of Terrorism

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Abstract

Terrorists attempt to communicate specific aspects of their ideological frameworks to shape the common perspective of their intended audiences. For the approach to be successful, the ideas they are promoting must fit within the cultural meaning systems shared across the population they are addressing. Knowing what messages will effectively persuade their constituents is likely intuitive for terrorists operating within their own cultural environment, but not necessarily for researchers who come from distinct cultural backgrounds. A method is thus described for studying in detail the common perspective that members of a culture bring to a situation. The method results in models of the culture that provide a basis for outsiders to begin to frame events from the cultural-insider point of view. The cultural models can then be used as an aid to anticipate how messages will be interpreted and evaluated by terrorists and their audiences.

Keywords: Cultural epidemiology, mental models, political violence, terrorist mind, jihad, Islam

The purpose of this paper is to describe an approach to cultural modelling, cultural network analysis (CNA), and its application to terrorism research. Cultural network analysis builds on a foundation of research practices drawn from the fields of cognitive anthropology, cultural and cognitive psychology, and decision analysis. It improves upon current cultural research techniques by providing a systematic method for constructing *cultural models* for groups, organisations, or wider societies. The essential idea is that, by studying in detail the common perspective that members of a culture bring to a situation, a model of the culture can be constructed that provides a basis for an outsider to begin to frame events from their point of view. The model can then be used for a variety of purposes, such as an aid to anticipating how messages will be interpreted and evaluated by members of the culture. Cultural models derived by CNA are represented graphically as a network of the culturally-shared concepts, causal beliefs, and values that influence key decisions in a particular context[1]. In their most fully developed form, cultural models also convey detailed quantitative information about the prevalence of their specific components. In order to establish a context for addressing

contributions that cultural modelling can make to terrorism research, we briefly review progress made in understanding terrorism more generally.

Advances in understanding the reasons behind jihadist terrorism have been made in the last several years, though the evidential research base remains thin[2]. Generally, terrorist support and recruitment are not due to any single causal factor, but instead stem from the interplay between political aspirations of terrorist groups, vulnerable individuals, employment of jihadist ideology, and wider social support for terrorism. These latter components increasingly depend on a variety of modern modes of communication that are used to propagate the group vision of the world to a broad set of constituents. The overall communication strategies of jihadist terrorist organisations can be generally characterised as to:

1. motivate ordinary persons to carry out terrorist acts to meet the organisation's objectives;
2. exploit moral outrage and feelings of humiliation based on political events;
3. convince by means of religious texts used on behalf of terror ideology.

We discuss each of these components of terrorist strategy in turn. First, with respect to profiles of individuals, what research there is indicates that suicide terrorists have no appreciable psychopathology and are at least as educated and economically well-off as their surrounding populations[3]. Furthermore, education does not appear to be correlated with support for terrorism. Finally, although economic despair may provide a partial answer, it does not offer a complete explanation[4]. Importantly, individuals who are vulnerable to terrorist recruitment are not motivated to take part in suicide terrorism without some form of ideology to guide them, as well as an overall organisation to support their activities[5].

The balance of evidence suggests that terrorists tend to be from at least moderately religious backgrounds. For example, interviews with terrorist recruits in Pakistan indicated that, "None were uneducated, desperately poor, simple minded or depressed," and "all were deeply religious." They believed that their acts were "sanctioned by the divinely revealed religion of Islam"[6]. Furthermore, it also seems clear that religiosity is fostered as a part of the indoctrination process and those external events can trigger greater attention to religion. For example, Bosnian Muslims typically report not considering religious affiliation a significant part of identity until seemingly arbitrary violence forced awareness upon them[7]. This is not to suggest that the root of terrorist motive is religion, only that religious beliefs and values form an important component of jihadist groups' descriptions of their world.

The second component of jihadist terrorist strategy is exploitation of public emotional responses to political events. Terrorist organisations appear to be quite sophisticated in their use of modern

media, including use of the World Wide Web to disseminate vivid imagery of moral wrongdoing by Americans and other agents of the West. Furthermore, humiliating and morally outrageous events are not considered isolated or random, but rather are interpreted within an overarching framework that a unified Western strategy exists to promote a "war against Islam"[8]

The third component of terrorist strategy is ensuring that recruits are so thoroughly convinced that they won't consider backing out, let alone feel any mercy or remorse about their actions. For a suicide terrorist in particular, this means they will act with no doubt about their decision to die in order to kill others[9]. For example, the fully indoctrinated terrorist has been described as being completely free of any ambiguity or doubt about the mission or the means to accomplish it [10]. This religious conviction includes a fundamental belief that the terrorist knows the mind of God. Such a belief justifies a complete lack of tolerance for divergent ideas, even of other believers who disagree with the terrorist group on specific issues (i.e., the true believer exists apart from all others).

Each of these strategies relies heavily on terrorist communication of specific aspects from their ideological framework to shape the common perspective of their intended audiences. For the approach to be successful, the ideas they are promoting must fit within the cultural meaning systems shared across the population they are addressing. One application of cultural modelling to terrorism research is to explicitly map out the relevant cultural meaning systems in order to better understand how and why various messages appear to be effective in influencing people's attitudes and garnering their support. Before addressing culture in terrorism, however, we first need to define *culture*.

Concept of Culture

There is a somewhat natural tendency to talk about culture as if it were a concrete, material thing. It is sometimes described as something people belong to, or as an external substance or force that surrounds its members and guides their behaviour. Although it is sometimes difficult to avoid speaking in these metaphorical terms, such an ethereal view does not provide a useful basis for a technical definition. An alternative approach begins by defining culture in terms of the widely shared ideas (such as concepts, values, and beliefs) that comprise a shared symbolic meaning system [11]. Within this conception, approximately equivalent and complementary learned meanings are maintained by a population, or by identifiable segments of a population. In this statement, 'approximately equivalent' acknowledges that no two people within a culture share exactly the same ideas, but rather highly-similar meanings are shared by most members of a society. The 'complementary' component refers to the fact that sharing of specialised knowledge depends on status and roles within a society (e.g. an imam and farmer).

Taking this conception a step further, it is currently popular within cognitive science to draw on a disease metaphor for understanding cultural ideas, describing the ideas that spread widely through a population and persist for substantial periods of time as especially 'contagious'[12]. This theoretical framework is often referred to as the epidemiological view of culture, drawing on the general sense of epidemiology as describing and explaining the distributions of any property within a population. The starting point for working from this epidemiological view is the individual idea as an atomic unit. People typically use the word *idea* to refer to any content of the mind, including conceptions of how things are and of how things should be. For instance, individuals may hold the concept that Western nations are joined together in a covert war against Islam. Their minds may also contain the value that imported Western ideals, such as the separation of religious and state affairs, are generally bad and so should be avoided. Ideas are often treated as independent units by social scientists, or grouped together into categories of belief for simplicity. A key premise of the current approach is that cultural knowledge consists of shared networks of ideas, and that there is value in explicitly considering clusters of ideas and their interrelationships. Networks of causally-interconnected ideas are often referred to as folk theories or *mental models* [13]. Such networks constitute people's explanations for how things work, and result in judgments and decisions that influence their behaviour.

From this perspective *culture* refers to mental models, and other contents of the mind, for which there is some level of concordance across members of a population over a period of time. A potential issue associated with this definition of culture is how, then, to define the population of interest. The term *cultural group* refers to a population or sub-population of people that largely share the interconnected ideas of interest. The issue is that cultural groups are distinct from, but related to, demographic groups (i.e. groups based on nationality, educational status, etc.) in that the demographic delineations relevant to a particular cultural group will depend on how widespread the cultural ideas of interest are. For example, Sunni and Shia sectarian distinctions make little difference if the idea of interest is, "There is no god but Allah, and Mohammad is his prophet." However, if the relevant common beliefs include those pertaining to the 13th Imam, then that demographic does become important. Hence, the relevant cultural group for a study will depend on the *cultural domain*, that is, the kind and topic of knowledge of interest.

Sunni Jihadist Cultural Model

Consider a Sunni Muslim extremist conception of socio-political relationships between Islam and the West. A mental model of such relationships contains an individual person's concepts as well as their understanding of the causal relationships between concepts, i.e. the antecedents and consequences of political activities and their outcomes. This mental model influences the

individual's expectations for how socio-political relationships will unfold and provides a framework for selecting behaviours and goals within this context. Figure 1 provides a network representation that might describe a Sunni Muslim's mental model of current political events. The set of ideas represented in Figure 1 were extracted from articles that describe jihadist narratives, and is presented here for illustrative purposes[14] ·[15] Figure 1 depicts a number of ideas using circles, lines, and colour. These ideas include simple concepts such as "Western arrogance" and "Muslim honour" represented as circles. It also includes causal ideas, such as that development of a new Islamic caliphate would decrease the extent of Western dominance and bring about a return of past Islamic glory. These are represented as lines in the figure, with +/- indicating the direction of the causal belief. Finally, Figure 1 portrays ideas of desired states or value using colour, as well as a logical flow across desired states. Developing an Islamic caliphate is a good thing. Maintaining (and enhancing) Muslim honour is likewise valued.

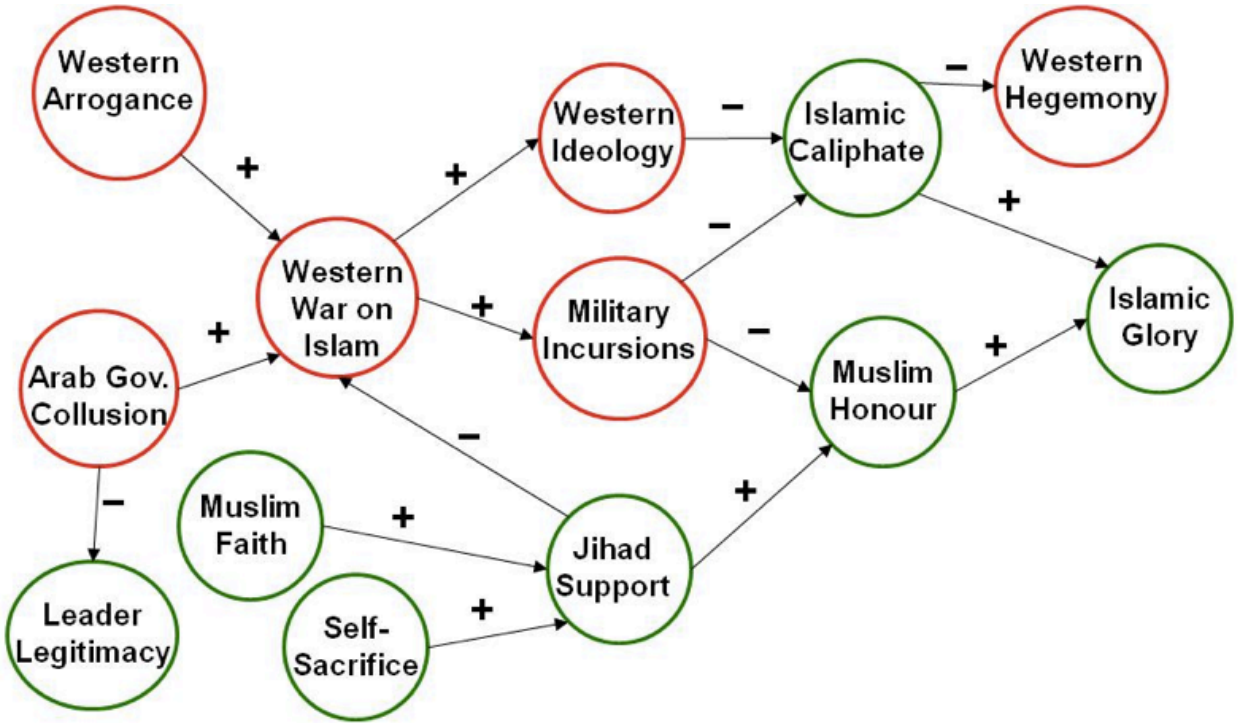

Figure 1. Sunni jihadist cultural model of political relationships

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According to the model, jihad is viewed positively and should be supported by the model's adherents due to the perceived anticipated consequences for Muslims. Most directly, support for jihad decreases the chances that the West will continue its war against Islam, and enhances collective Muslim honour. Holding the beliefs described by this mental model is likely to have fairly strong consequences for how a person will decide and act in a number of specific, relevant situations.

As implied by the name, mental models reside inside the heads of individuals. However, when people communicate with each other in any variety of modes, they develop mental models that may begin to resemble one another. Mental models can spread widely throughout a population, becoming 'cultural' in the sense of being shared by many of its members. A *cultural model* refers to an external representation of a set of culturally-shared mental models that is constructed by a researcher. A cultural model represents a consensus of the mental models for a particular cultural group and domain. Hence, for the Sunni Muslims who hold beliefs similar to the elements in this model, Figure 1 serves as one of their *cultural models* in the domain of socio-political relationships.

Considering Figure 1 as a cultural model gives us a precise way of identifying cultural transmission and cultural change [16]. For example, suppose the prospect of return to a glorious Islamic civilisation is the most salient perceived outcome that is positively influenced by the concept of supporting jihad. A change in the causal belief chain so that jihad in the present situation is seen instead as decreasing the chances of a glorious Islamic revival could affect a change in the value (or attitude) associated with acts that support jihad. That is, we might observe a change in the overall cultural model resulting from this shift in the specific causal chain of beliefs that link jihad to Islamic glory. Such an attitude change might then result in a re-examination and reinterpretation of Islamic texts, or at least the salience of such messages. This example highlights the interrelation between causal beliefs and values, in addition to illustrating how cultural models can represent cultural transmission.

Cultural Values, Models and Domains

Cultural psychologists have often conceptualised culture in terms of lists of domain-general, stable traits, such as individualist-collectivist value orientations [17]. Researchers operating within this programme aim to find a core set of dimensions for characterising cultures that they believe to be important across a wide variety of domains. The idea is to provide purely analytical predictions, a priori, about cultural groups that are widely applicable to many particular problems. For example, cultural researchers from this perspective might attempt to understand popular support for jihad in Middle Eastern countries by considering the general level

of disparity of power held by members of those societies. An important assumption about culturally-shared mental models, in contrast, is that they are highly specific to particular domains [18]. That is, activities such as participation in a rally for Hezbollah are supported by mental models that are tailored to those specific activities. Hence the culturally-shared mental models comprise values, beliefs, and concepts that are salient to members of a particular culture in particular contexts, and may well not generalise to other situations. Multiple cultural values are reflected in people's mental models, and certain values may be more important than others depending upon the situation, a phenomenon sometimes known as *value trumping* [19]. For example, Americans typically place a high value on freedom of speech; however, they may also support censorship or restricted access to information at certain times (e.g., extremely violent or sexually-explicit content). Hence, from the cultural models perspective it is difficult to understand the cultural considerations that are relevant within a particular context by starting with pre-existing lists of "domain general" cultural values. This suggests that it is preferable to begin cultural analysis of a new domain in a more exploratory fashion, allowing values to emerge from the analysis along with their related cultural concepts and causal beliefs [20].

Mental models are naturally domain specific because they are explanations of the workings of particular artefacts and natural processes. Furthermore, mental models can vary across cultures in ways that are constrained only by the domain itself and any cognitive universals that ground shared understanding across humanity [21]. Most work on mental models has focused on the physical domain, though people also possess mental models that pertain to the psychological and social domains, as exemplified in Figure 1 [22]. A cultural model represents a consensus of mental models within the context of a particular domain.

One specific approach to cultural modelling begins by identifying the judgements or decisions of primary interest for study, such as a decision to engage in suicide terrorism. The decisions chosen arise in specific contexts as defined by critical incidents or scenarios. They are made by members of the cultural group being investigated, typically in a way that is surprising or confusing to members outside the group. Once the key decisions are identified, investigators build models of the cultural ideas that directly influence those decisions. This approach, called "cultural network analysis" ensures that the aspects of culture investigated are relevant to the decisions of interest.

Cultural Network Analysis

Cultural network analysis is a method for describing ideas that are shared by members of cultural groups, and relevant to decisions within a defined situation [23]. CNA discriminates between three kinds of ideas: concepts, values, and beliefs about causal relations. The cultural models resulting from CNA use network diagrams to show how all the ideas relate to one another. The

CNA approach also includes the full set of techniques needed to build cultural model diagrams. This consists of specific methods to elicit the three kinds of ideas from people in interviews or survey instruments, extract the ideas from interview transcripts or other texts, analyse how common the ideas are between and within cultural groups, and align and assemble the common ideas into complete maps. CNA shares aspects with other approaches to cultural analysis, especially cognitive approaches developed by anthropologists [24]. However, it offers some specific aspects as a complete method that distinguishes it from other ways of examining cultures. These aspects include an emphasis on ensuring relevance of cultural models to key decisions to provide a more direct link to actual behaviour, portrayal of the cultural insider or 'emic' perspective, modelling interrelated networks of ideas rather than treating ideas as independent entities, and by seeking to directly estimate the actual prevalence of ideas in the network rather than relying on more vague notions of sharedness.

Cultural Network Analysis comprises an exploratory phase and a confirmatory phase. In the exploratory phase, concepts and mental models are extracted from qualitative sources, such as interviews and open source media (web news, blogs, email), with little presupposition regarding the elicited contents. One goal of this phase is to develop an initial understanding of the concepts and characteristics that are culturally relevant within the domain. A second objective is to obtain initial graphical representations of people's mental models in forms that closely match their own natural representational structure. Qualitative analysis and representation at this stage yield insights that can be captured in initial cultural models. Often, qualitative analysis may be all that is needed for applications. The exploratory phase also generates a wealth of material for constructing subsequent structured data collection in a confirmatory phase. In the confirmatory phase of CNA, structured interviews, field experiments, and automated semantic mining of web-based sources are used to obtain systematic data that is more amenable to statistical analysis. Statistical models used by cognitive anthropologists and market researchers are employed to assess the patterns of agreement and derive statistics describing the distribution of concepts, causal beliefs, and values. Finally, formal representations of the cultural models are constructed that illustrate the statistical and qualitative information in diagrams. Influence diagrams are an important representation format for cultural models, as illustrated in Figure 1. Formal representation makes it possible to use cultural models in a variety of applied contexts.

Cultural Models and Terrorist Cognition

Cultural modelling and the epidemiological view of culture can help to further understand the shared cognition of terrorists and their audiences. From the epidemiological view, culture is made up of contagious ideas, that is, ideas that propagate effectively within a population [25].

Two broad objectives of research from this cultural epidemiology viewpoint are to characterise the current distribution of mental models within cultural groups, and to understand the dynamics of culture.

Fundamental cultural research programs from this perspective seek to address why some ideas are more infectious than others, and to explain the most widely distributed and long-lasting ideas within a population. Research for practical purposes has a slightly different focus. From a decision-making standpoint, for example, we recognise that many ideas may be pervasive but inconsequential to decisions of practical interest [26]. Hence, a decision-centred approach to culture and cognition begins with critical judgements and decisions that are made by members of a cultural group. For example, we conceive of the decision to accept the terrorist group's worldview as the central node within the highest-level of a hierarchy of terrorist cultural models. Using Cultural Network Analysis, we can study the networks of causally-interconnected ideas that are relevant to those decisions in order to answer a host of questions, such as:

1. What is the distribution of mental models shared among particular terrorist groups and their potential supporters?
2. How did the distribution get to be that way?
3. How stable are those distributions?
4. In what ways are the distributions changing over time?
5. How do individual ideas influence one another in these cultural belief networks?

Resulting cultural models and descriptions of their dynamics from such studies can provide considerable insight into the thinking behind communications that stem from terrorist groups. They also provide a basis for developing effective counter-communications by aiding in the determination of what makes for culturally meaningful messages. Cultural models would allow for making predictions concerning the effectiveness of a message by providing the opportunity to assess potential unintended inferences that individuals with a certain knowledge structure might make. Specifically, in a cultural models diagram, each concept and causal belief represents an opportunity to effect a change in beliefs or concepts. Hence, such diagrams can provide an orderly basis for determining the content of communications. Messages are created so as to affect the values of the most vulnerable concept nodes (i.e., those for which there is the least consensus) which then propagate across perceived influences to affect the values of other concepts. These effects spread through the cultural belief network, ultimately changing the value in overall perceptions or cognitions. With this CNA approach, information efforts focus on

transmitting the most relevant information to effect conceptual change in a way that makes sense within the cultural group's understanding.

If the cultural group's understanding is mapped out in this way using their culturally relevant concepts and causal beliefs, then it can be relatively straightforward to identify critical concepts for targeting messages. Pursuing this strategy requires the following steps:

- create a cultural model relevant to the action or belief of interest;
- obtain relevant quantitative estimates of parameters in the model;
- simulate the cultural change effects of changes to detail-level concept values;
- identify the most vulnerable concepts and concept values as those for which the most disagreement exists;
- compose messages to affect the values of those concepts.

In sum, the results of CAN studies can provide valuable input to the development of accurate models of terrorist decision making, as well as for the cognitive characterisation of groups based on their ideological commitments. A critical aspect of establishing an environment unfavourable to extremist ideas is to begin to take apart the rhetoric of terror-sponsoring organisations, and address their ideologies through communication [27]. In doing this, we may find ways to remove the appeal of religious-inspired myths of terrorist acts as the glorious correction of moral wrongdoing [28].

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Notes

[1] Sieck, W. R., L. J. Rasmussen, et al. (2010). Cultural network analysis: A cognitive approach to cultural modeling. Network Science for Military Coalition Operations: Information Extraction and Interaction. D. Verma. Hershey, PA, IGI Global: 237-255.

[2] Atran, S. and M. Sageman (2006). "Connecting the dots." Bulletin of the Atomic Scientists **62**(4): 68.

[3] Atran, S. (2003). "Genesis of suicide terrorism." Science **299**: 1534-1539.

[4] Barsalou, J. (2002). "Islamic extremists: How do they mobilize support?" United States Institute of Peace Special Report(89): 1-8.

[5] Speckhard, A. (2006). Sacred terror: Insights into the psychology of religiously motivated terrorism. Faith-based radicalism: Christianity, Islam and Judaism between constructive activism and destructive fanaticism. C. Timmerman, D. Hutsebaut, S. Mells, W. Nonneman and W. V. Herck. Antwerp, Belgium, UCSIA.

[6] Hassan, N. (2001). "An arsenal of believers." The New Yorker **November 19**: 36-41.

[7] Atran, S. (2003). "Genesis of suicide terrorism." Science **299**: 1534-1539.

[8] Sageman, M. (2008). "The next generation of terror." Foreign Policy **March/April**: 37-42.

[9] Speckhard, A. (2006). Sacred terror: Insights into the psychology of religiously motivated terrorism. Faith-based radicalism: Christianity, Islam and Judaism between constructive activism and destructive fanaticism. C. Timmerman, D. Hutsebaut, S. Mells, W. Nonneman and W. V. Herck. Antwerp, Belgium, UCSIA.

[10] Juergensmeyer, M. (2000). Terror in the mind of God: The global rise of religious violence. Berkeley, CA, University of California Press.

[11] Rohner, R. P. (1984). "Toward a conception of culture for cross-cultural psychology." Journal of Cross-Cultural Psychology **15**(2): 111-138.

[12] Sperber, D. (1996). Explaining culture: A naturalistic approach. Malden, MA, Blackwell.

[13] Gentner, D. and A. L. Stevens (1983). Mental Models. Hillsdale, NJ, Lawrence Erlbaum Associates.

[14] Hafez, M. M. (2007). "Martyrdom mythology in Iraq: How jihadists frame suicide terrorism in videos and biographies." Terrorism and Political Violence19: 95-115.

[15] Sageman, M. (2008). "The next generation of terror." Foreign Policy **March/April:** 37-42.

[16] Norenzayan, A. and S. Atran (2004). Cultural transmission of natural and nonnatural beliefs. The psychological foundations of culture. M. Schaller and C. Crandall. Hillsdale, NJ, Lawrence Erlbaum Associates, Inc.

[17] Hofstede, G. (2001). Culture's consequences. Thousand Oaks, CA, Sage.

[18] Hirschfeld, L. and S. Gelman, Eds. (1994). Mapping the mind: Domain specificity in cognition and culture. New York, Cambridge University.

[19] Osland, J. S. and A. Bird (2000). "Beyond Sophisticated Stereotyping: Cultural Sensemaking in Context." Academy of Management Executive **14**(1): 65-79.

[20] Sieck, W. R., A. P. Grome, et al. (2010). Expert cultural sensemaking in the management of Middle Eastern crowds. Informed by Knowledge: Expert Performance in Complex Situations. K. L. Mosier and U. M. Fischer, Taylor and Francis.

[21] Hirschfeld, L. and S. Gelman, Eds. (1994). Mapping the mind: Domain specificity in cognition and culture. New York, Cambridge University.

[22] McHugh, A. P., J. L. Smith, et al. (2008). Cultural variations in mental models of collaborative decision making. Naturalistic Decision Making and Macrocognition. J. M. C. Schraagen, L. Militello, T. Ormerod and R. Lipshitz. Aldershot, UK, Ashgate Publishing Limited: 141-158.

[23] Sieck, W. R. (2010). Cultural network analysis: Method and application. Advances in Cross-Cultural Decision Making. D. Schmorrow and D. Nicholson. Boca Raton, CRC Press / Taylor & Francis, Ltd: 260-269.

[24] D'Andrade, R. G. (1981). "The cultural part of cognition." Cognitive Science **5**: 179-195.

[25] Sperber, D. (1996). Explaining culture: A naturalistic approach. Malden, MA, Blackwell.

[26] Bostrom, A., B. Fischhoff, et al. (1992). "Characterizing mental models of hazardous processes: A methodology and an application to radon." Journal of Social Issues **48**(4): 85-100.

[27] Speckhard, A. (2006). Sacred terror: Insights into the psychology of religiously motivated terrorism. Faith-based radicalism: Christianity, Islam and Judaism between constructive activism and destructive fanaticism. C. Timmerman, D. Hutsebaut, S. Mells, W. Nonneman and W. V. Herck. Antwerp, Belgium, UCSIA.

[28] Sageman, M. (2008). "The next generation of terror." Foreign Policy **March/April**: 37-42.

Bibliography

Atran, S. (2003). "Genesis of suicide terrorism." Science **299**: 1534-1539.

Atran, S. and M. Sageman (2006). "Connecting the dots." Bulletin of the Atomic Scientists **62** (4): 68.

Barsalou, J. (2002). "Islamic extremists: How do they mobilize support?" United States Institute of Peace Special Report (89): 1-8.

Bostrom, A., B. Fischhoff, et al. (1992). "Characterizing mental models of hazardous processes: A methodology and an application to radon." Journal of Social Issues **48**(4): 85-100.

D'Andrade, R. G. (1981). "The cultural part of cognition." Cognitive Science **5**: 179-195.

Gentner, D. and A. L. Stevens (1983). Mental Models. Hillsdale, NJ, Lawrence Erlbaum Associates.

Hafez, M. M. (2007). "Martyrdom mythology in Iraq: How jihadists frame suicide terrorism in videos and biographies." Terrorism and Political Violence **19**: 95-115.

Hassan, N. (2001). "An arsenal of believers." The New Yorker **November 19**: 36-41.

Hirschfeld, L. and S. Gelman, Eds. (1994). Mapping the mind: Domain specificity in cognition and culture. New York, Cambridge University.

Hofstede, G. (2001). Culture's consequences. Thousand Oaks, CA, Sage.

Juergensmeyer, M. (2000). Terror in the mind of God: The global rise of religious violence. Berkeley, CA, University of California Press.

McHugh, A. P., J. L. Smith, et al. (2008). Cultural variations in mental models of collaborative decision making. Naturalistic Decision Making and Macrocognition. J. M. C. Schraagen, L. Militello, T. Ormerod and R. Lipshitz. Aldershot, UK, Ashgate Publishing Limited**:** 141-158.

Norenzayan, A. and S. Atran (2004). Cultural transmission of natural and nonnatural beliefs. The psychological foundations of culture. M. Schaller and C. Crandall. Hillsdale, NJ, Lawrence Erlbaum Associates, Inc.

Osland, J. S. and A. Bird (2000). "Beyond Sophisticated Stereotyping: Cultural Sensemaking in Context." Academy of Management Executive **14**(1): 65-79.

Rohner, R. P. (1984). "Toward a conception of culture for cross-cultural psychology." Journal of Cross-Cultural Psychology **15**(2): 111-138.

Sageman, M. (2008). "The next generation of terror." Foreign Policy **March/April**: 37-42.

Sieck, W. R. (2010). Cultural network analysis: Method and application. Advances in Cross-Cultural Decision Making. D. Schmorrow and D. Nicholson. Boca Raton, CRC Press / Taylor & Francis, Ltd**:** 260-269.

Sieck, W. R., A. P. Grome, et al. (2010). Expert cultural sensemaking in the management of Middle Eastern crowds. Informed by Knowledge: Expert Performance in Complex Situations. K. L. Mosier and U. M. Fischer, Taylor and Francis.

Sieck, W. R., L. J. Rasmussen, et al. (2010). Cultural network analysis: A cognitive approach to cultural modeling. Network Science for Military Coalition Operations: Information Extraction and Interaction. D. Verma. Hershey, PA, IGI Global**:** 237-255.

Speckhard, A. (2006). Sacred terror: Insights into the psychology of religiously motivated terrorism. Faith-based radicalism: Christianity, Islam and Judaism between constructive activism and destructive fanaticism. C. Timmerman, D. Hutsebaut, S. Mells, W. Nonneman and W. V. Herck. Antwerp, Belgium, UCSIA.

Sperber, D. (1996). Explaining culture: A naturalistic approach. Malden, MA, Blackwell.