Persuasive Communication from a Military Force to Local Civilians: A Cognitive Treatment of PsyOps Messages Based on the Elaboration Likelihood Model

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ABSTRACT

Here is presented a model of message processing using one of the leading paradigms in social psychology of persuasion as main theoretical framework: the Elaboration Likelihood Model (ELM). Adapting this dual process theory to military context and actions and more specifically psychological operations in asymmetric conflicts allows developing a model taking into account many message characteristics as well as specific factors such as local culture of the audience. It focuses on measuring capacity and motivation of the agents to determine the effect of message sending on attitudes through a detailed cognitive treatment.

KEYWORDS

COIN, Culture, Elaboration Likelihood Model, Intelligent Agents, Persuasive Communication, PsyOps, Social-Cognitive Simulation, Social Psychology

1. INTRODUCTION

Psychological Operations are widely recognized as a tool of great relevance by the militaries when it comes to reestablish stability in a war torn foreign country. By sending messages directed on carefully chosen info-targets by various means of communication, these communication operations allow not only to undermine enemy morale or intelligence, but more importantly to influence the perceptions of a local population usually caught between conflicting interests and agendas. The fact that the boundaries between local people and warring factions preying upon them are most of the time blurred makes the attitudes of the locals an all the more decisive factor of the outcome of counter insurgency, peacekeeping and peacebuilding missions. Modelling these psychological operations and their effects in the framework of a training system is necessary but challenging considering the number of factors involved. If it is to be predictive, it has to comprise an important number of intelligent agents forming the population and an accurate representation of the cognitive processes they execute when receiving persuasive messages. These are the objectives of SICOMORES (SImulation COnstructive et MOdélisation des effets des opérations d’influence dans les REseaux Sociaux). This paper leaves propagation to future publications and focuses on communication between the military force and direct civilian info-targets.

In the next section the related research on PsyOps and persuasive communication modeling is introduced, and then in the following section the SICOMORES theoretical bases for persuasion are
presented. The fourth section details the static component of the system, notably the general human framework of the environment, and the following section the model dynamics, i.e. the message processing model. The last section concludes the paper.

2. RELATED WORK

Consistently with the industrial context, quite a few systems modeling PsyOps actions exist. SHOUT (Van Vliet, Huibregtse, & Van Hermert, 2011) for instance, is a simulator of message dissemination on a virtual theatre of war (XLand) emulating an African failed state comprising two religions and different political actors. Agents in the network are only communities and the tool aims primarily at producing propagation results, allowing to know which communities have been reached by a given message, therefore there is no individual cognitive processing of messages. Propagation is epidemiological and the theoretical basis for communication parameters is limited to the well-known Laswell media model (Laswell, 1948).

The CAPRICORN architecture (Khimeche, Frydman, Faucher et al., 2012), primarily developed for an Afghan scenario (Kapisa region) and allowing experimentation with PsyOps, CIMIC (civil-military cooperation) and Info-Ops, has seen some extensive developments (Bruzzone, Massei, Poggi, et al., 2015). While currently comprising a population model with some interest groups and complex agents possessing detailed emotional attributes and using fuzzy rules to estimate the effects of influence operations, the model simulates mainly military procedures and does not make use of social psychology theories of persuasion.

The Polias system (Brousmiche, Kant, Sabouret, et al., 2014) is also explicitly related to the context of asymmetric warfare and simulates PsyOps actions, but the model goes further by integrating attitude formation though witnessing of military actions, and communication and influence between agents within a group. Built on the concept of attitude developed in the field of social psychology, the model mainly concerns itself with attitude dynamics (construction and change) and influence as a social phenomenon based on belief exchange, more than with a persuasion process in the strictest sense. It incorporates a few chosen variables such as source credibility or unexpectedness in the cognitive treatment and uses only 100 cognitive agents for experimentation.

Some other interesting computational models have been developed, focusing more or less on military applications and, if not specifically on psychological operations, on the closely related problem of media influence. COMPOEX (Bennett, 2009), for instance, aims at assisting military planners in understanding the complex dynamics of international interventions by integrating a whole library of generic interacting models which can be instantiated by experts, thus producing an extensive and flexible architecture simulating an entire theatre of operations. Notably integrating a model of media influence (MIM) built on a rich theoretical background, it represents in a time discrete paradigm the media message production, access, flow and impact on population segments characterized by attitudes, but does not seem to make use of the possibilities of multi-agent modeling to simulate individual cognitive processing of messages. The PEBM (Gonzalez-Avella, Cosenza, Klemm, et al., 2007) is of interest as a simulation exploring direct and indirect media influence on a culturally complex population composed of interacting agents receiving messages and providing feedback, but the impacted attitudes seem to be only the cultural attributes of the agents, as the model is focused on cultural dissemination and the emergence of culturally uniform communities.

To our knowledge, the research developed by Mosler et al. (Mosler, Schwarz, Ammann, et al., 2001), aiming at exploring the polarization of attitudes phenomenon, proposes the only computer-simulation model of the prominent Elaboration Likelihood Model of persuasion (Petty & Caccioppo, 1986). It instantiates only two agents alternately exchanging messages characterized by argument quality and peripheral cues and updating their attitudes as a result, in accordance with the theory. A noisy channel impairing argument quality is simulated for added realism. Such a model of bidirectional
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