No crystal ball necessary: Scientists can accurately predict leadership emergence

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(PhysOrg.com) -- Dutch scientists at VU University Amsterdam are able to quite accurately predict the emergence of leaders in domains such as politics and the military. They developed a model of leadership emergence based on the interaction between our biological properties and social environment.

The model suggests that being selected as a leader is for a large part dependent on a match between physical attributes (such as the face), the message the leader conveys, and the perceived situation requirements in which the leader has to make decisions. For instance, this model has shown that in times where the perception of threat is great, potential leaders with a masculine face emphasizing this threat in their message are most likely to be elected as leader. On the other hand, potential leaders with a feminine face may be better off profiling themselves as a peacemaker, and attempt to make the majority of followers perceive the need for cooperation in the social network – rather than conflict – as the most important and beneficial need.

Of the physical traits the face is particularly important. A masculine face has thick eyebrows, a broad nose and jaw, and small lips and small eyes and is associated with higher levels of testosterone. Likewise, higher levels of testosterone are generally associated with more dominant and aggressive behavior. Spisak: "This is potentially one reason why we associate masculine features with conflict and war and feminine features with cooperation and peace".

In part funded by the United States Office of Naval Research Global (ONRG), the research was designed to investigate systematic methods for seeking peaceful cooperation with local people in conflict areas. "Our model shows that it's best not to come out with an army vehicle packed with heavily armed soldiers," says lead researcher Brian R. Spisak. "Instead, select a unit of individuals that display less hostile physical characteristics. If they also take off their helmets and lay their machineguns aside, the perceived level of threat by the local population will be reduced. This, in tandem with encouraging the emergence of more amicable leaders, can greatly increase the chance of peaceful cooperation."

In collaboration with VU University colleague Alexei Sharpanskykh, Spisak developed an artificial intelligent model that shows when a leader can count on support. In fact, they were able to accurately mimic changing voter favorability ratings for the 2004 and 2008 US Presidential General Elections and predict the outcome of both elections within one percent. Spisak: "This way we could show why presidential candidate John McCain was more popular than Barack Obama for a short time around the anniversary of 9/11 regardless of the so-called 'Palin bump'. The military image and more masculine physical traits of McCain perhaps matched with an acute feeling of a terrorist threat around the remembrance of 9/11. But a few weeks later this feeling likely decreased and the overall image of McCain no longer fit, and Obama regained his overall popularity with 'Change'. With our model we could accurately predict who would win the elections."

More information: The research results have been published in two papers:

1. Facing the situation: Testing a biosocial contingency model of leadership in intergroup relations using masculine and feminine faces (*The Leadership Quarterly* – special issue on the biology of leadership, in

press, available online 10 September 2011).

2. An agent-based evolutionary model of leadership (*Proceedings of the Third IEEE International Conference on Social Computing*, 9-11 October 2011).

Provided by VU University Amsterdam