

【Grant-in-Aid for Scientific Research (S)】

Humanities and Social Sciences (Social Sciences)



Title of Project : Mutual Construction of Neuro-Psychological and Socio-Institutional Foundations of Prosocial Behavior

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Research Area : Social Science

Keyword : Prosocial behavior, Altruism, Evolution, Economic game, Brain

【Purpose and Background of the Research】

The purpose of this research project is, first, to analyze the complementary relationships between neuro-psychological foundations of uniquely human pro-sociality (cooperativeness, empathy, reciprocity, etc.) and the socio-institutional niches in which human pro-sociality has evolved, and second, to specify both the psychological and the institutional conditions for the transition of the Japanese society toward a more open and trust-based society from an assurance-based society. This analysis will be conducted with a special emphasis on the role of social niche construction—a process through which behavioral patterns among individuals who face the same social environment become an institution providing individuals incentives to behave in specific ways, and to develop psychological traits that facilitate behaving in such ways. We will conduct experimental and survey studies on each of the following topics.

- 1) The relationship between default and heuristic cooperation, on the one hand, and the deliberate and strategic cooperation, on the other. Specifically, we will test the hypothesis that heuristic-based cooperation will prevail in societies characterized with the bonding-type social capital consisting of strong ties, whereas more deliberate and strategic cooperation will prevail in societies characterized with the bridging-type social capital consisting of weak ties backed up by the established rule of law.
- 2) Socio-institutional bases of cultural differences in the human mind. One of the challenges that the Japanese society currently faces is how to transform the security-seeking and defensive mentality of (particularly) the youth to a more opportunity-seeking and promotive mentality. We will analyze the aspects of socio-institutional foundations that give rise to the security-seeking mentality, and will propose possible policy measures that help transform it to a more promotive and self-expressive one.
- 3) The relationship between gene polymorphism related to neuro-transmitter receptors with known cultural differences and prosocial behaviors

exhibited in economic games will be examined.

【Research Methods】

We ask the participants in our previous study (Neuro-Psychological and Socio-Institutional Foundations of Pro-Sociality; Scientific Research (S), FY2011-2015) to continue participating in the current study. We have already accumulated behavioral data from over a dozen economic games, together with participants' demographic traits, personality traits, beliefs, attitudes, values, IQ, their brain structural and genomic data. We select participants from this data set based on their previous behavior and other traits, and ask them to perform cognitive and game tasks in the fMRI machine. Another line of large-scale experiments will study the genesis of institution-specific behavioral and psychological traits.

【Expected Research Achievements and Scientific Significance】

This study will prove to be a model case for inter-disciplinary collaboration under the initiative of social scientists, where social scientists play more than supplementary roles. The study findings will provide an overarching framework, the social niche construction framework, to integrate findings in cultural psychology and evolutionary studies of human pro-sociality.

【Publications Relevant to the Project】

- Yamagishi, T. (2011). Trust: *The evolutionary game of mind and society*. Springer.
- Yamagishi, T., Horita, Y., et al. (2012). Rejection of unfair offers in the ultimatum game is no evidence of strong reciprocity. *PNAS USA*, 109, 20364-20368.

【Term of Project】 FY2015-2019

【Budget Allocation】 153,500 Thousand Yen

【Homepage Address and Other Contact Information】

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