

【Grant-in-Aid for Scientific Research(S)】
Humanities and Social Sciences (Social sciences)



Title of Project : Psycho-neurological and institutional foundations of pro-social behavior

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Research Area : Social Psychology

Keyword : social interactions, interpersonal relations, cooperation

【Purpose and Background of the Research】

Based on the institutional approach which analyzes pro-social behavior (such as cooperation, empathy, reciprocity, fairness, etc.) that makes humans as social beings from the perspective of co-evolution of psychological and neural functionings and social niches consisting of behaviors, beliefs, and incentives (i.e., institutions), we propose to identify consistencies and inconsistencies in behavior across various types of experimental games. We further propose to find corresponding consistencies and inconsistencies in the neural activities of the players across these experimental games. In particular, we will focus our analysis on the following issues. 1) To identify the roles that social risk aversion (SRA) plays in producing consistencies across various types of experimental games. For this purpose, we are proposing to develop several alternative measures of SRA, and apply these alternative measures to demonstrate the robustness of the currently available findings. 2) To analyze the neural bases of the consistency in behavior across various games using the brain scanning data, with particular focus on the roles SRA plays in producing the consistency. 3) To conduct replication studies in Western and Asian societies to demonstrate the robustness and cultural variations of the major findings.

【Research Methods】

The core of the proposed study is to conduct a battery of experimental games (such as prisoner's dilemma game, social dilemma game, trust game, dictator game, ultimatum game, assurance game, etc.) with the same set of non-student participants over three years to identify consistencies in behavior across those games. We also propose to measure participants' demographic traits, personality traits, beliefs, attitudes, values, including IQ, EQ, empathy, and so on, and examine how these individual traits are related to the pro-social behavior across experimental games. In addition to measuring participants' individual traits, we propose to take fMRI

images of the brain activities of some of the participants as they make decisions in the experimental games. Participants' saliva samples will be used to measure their levels of stress-related and other hormones.

【Expected Research Achievements and Scientific Significance】

Pro-social behavior in experimental games has traditionally been explained in terms of pro-social preferences (i.e., preferences for particular social outcomes). Such pro-social preferences, however, are known to be activated depending on particular situational cues. Our research will identify how cognitive processes interact with motivational processes in activating a particular set of social preferences under certain social situations. In addition, we will make the experimental data together with individual trait and brain scanning data public after the study is completed so that a wide range of social scientists and behavioral scientists, especially those who have limited access to experimental data, can use experimental and individual trait data. This will be the first public data set of experimental game studies.

【Publications Relevant to the Project】

Yamagishi, T. (2011). Trust: *The evolutionary game of mind and society*. Springer.

Yamagishi, T. (2011). Micro-macro dynamics of the cultural construction of reality: A niche construction approach. Pp. 251-308 in M. J. Gelfand, C-Y Chiu, Y-y Hong (eds.), *Advances in culture and psychology*, Vol. 1. Oxford University Press.

Yamagishi, T., et al. (2008). Preference vs. strategies as explanations for culture-specific behavior. *Psychological Science*, 19(6), 579-584.

【Term of Project】 FY2011-2015

【Budget Allocation】 150,000 Thousand Yen

【Homepage Address and Other Contact Information】

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