

Science and technology communication related to wind energy using gaming simulations

M. Motosu¹, J. Sugiura² and C. Arakawa¹

¹ *The University of Tokyo, Tokyo, Japan*

² *Aichi University of Education, Kariya, Japan*

Introduction

There has been a growing interest in harnessing renewable energy to reduce the emission of greenhouse gases. Therefore, wind energy has also become the focus of public attention. However, as the number of wind turbine installations grows, there is an increasing opposition to wind projects.

Given these circumstances, we develop a science and technology communication tool to discuss wind turbine installations and deal with positive and negative aspects of wind projects. In this research, we apply a gaming simulation (persuasion game, the “Settoku Nattoku Game,” Sugiura, 2003) to examine how players’ evaluations and their understanding of wind turbines change after playing diverse roles of stakeholders in this game.

Methods

The Settoku Nattoku Game (SNG) was implemented in five environment related classes (150 participants) of A university in July and December 2010 and January 2011. In the SNG, players are categorized on the basis of two roles, i.e., players who persuade (Persuader) and the ones who get persuaded (Persuaded); players repeatedly interact on the issue that needs to be persuaded. To analyze the change in their evaluation and understanding of wind turbines, we made three changes in the gaming process of each implementation; a difference in the number of persuaders in a group to discuss means of persuading others, a difference in the debriefing of the persuaded, and a difference in the prelecture concerning wind turbines. In addition, we discuss the appropriate use of the SNG in accordance with aims of science and technology communication.

Main findings

Main findings are as follows.

First, it was revealed that players were not very familiar with negative aspects of wind projects; moreover, through this game, they were able to deepen their understanding of both positive and negative aspects of wind projects.

Second, players were able to recognize that positive and negative aspects of wind projects vary, depending on locations and turbine types.

Third, we propose some apt uses of the SNG based on the number of players and limitations of places where the game is conducted as well as the aim of science and technology communication.

Finally, we discuss the effectiveness and subjects of different gaming processes in each implementation.

Acknowledgments

This research is financially supported by a Grant-in-Aid for Scientific Research in Japan (Study of gaming concerning the adjustment process of the conflicting interests and acceptance of the outcomes, No. 21730493; the lead author of the study is Junkichi Sugiura).

References

SUGIURA, J. (2003),

The Development of The Persuasion Game.

Proceedings of the 34th Annual Conference of the International Simulation and Gaming Association (ISAGA), pp. 713–722. Kazusa Akademia Park, Japan.