

## Abstract

This paper re-examined the efficacy and endowment effects in public goods dilemma (PGD) by introducing a new concept of efficiency to conceptualize efficacy as resource  $\times$  efficiency. Students participated in the questionnaire study that described a public goods dilemma as different group project scenarios. Resource was manipulated as the amount of time (number of hours: 6 vs. 9) available to read research papers for the group project and efficiency was manipulated as the speed that a person can read research papers (number of pages read per hour: 10 vs. 15). We contrasted a person's own resource and efficiency with hypothetical members' resource and efficiency in a  $2 \times 2 \times 2 \times 2$  factorial design. Results indicate that a person contributed more time to the group project (i.e., cooperated more in a PGD) when the person had more resource and when other members were less efficient. A person's own efficiency and the other members' resource did not affect that person's cooperation rate. There were also four-way interactions of own resource  $\times$  own efficiency  $\times$  others' resource  $\times$  others' efficiency on the amount of time contributed and the number of pages read for the group project. Under the framework of Efficacy = Resource  $\times$  Efficiency, we suggest that cooperation should be distinguished between the amount of effort contributed and the amount of public good produced.