

The Role of Culture in Shaping Group Dynamics

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Abstract. The free-rider problem is a common phenomenon in our daily lives. However, little research has been done to demonstrate the role of culture in shaping a person's free-riding tendency. In this study, the author investigated how cultural background, including individualism and collectivism, determines a person's tendency to exhibit free-riding behavior. The analysis of the results showed significant expected differences between individualists and collectivists, with possessing individualistic values decreasing an individual's chances of free riding. There are still some limitations, and the author believes the experiment can be applied in the real world. The impact of social norms on the free-rider problem differs between cultural contexts, which may lead to a variance between results in research on the free-rider problem when applied cross-culturally.

Keywords: Culture; Group Dynamics; Shaping.

1. Introduction

1.1. Background

The National Institute of Health defines free riders as “individuals who do not contribute to a collective project but still benefit from it.” From this phenomenon arises the question of how free riders form and what environments and traits encourage this behavior. To answer the first question, there are two contexts: the first one is about education and cooperative learning, and the second is about public goods. Johnson and Johnson developed the idea of cooperative learning (CL) in business and economic education, and the underlying ideas still hold promise for scholars and teachers [1]. According to Caldwell, Weisher, and Glazen, CL can be used to preserve students' positive attitudes, improve academic achievement, and promote the development of social skills [2, 3]. Students work to develop a particular amount of independence and competency in independent learning contexts. In contrast, in CL contexts, students collaborate in organized groups to complete a task or grasp a particular idea. A student's grade is based on how well they comprehend the subject matter or complete the assignment and how well the other group members perform.

In other contexts, the free rider problem can also occur. For instance, if each of us contributes less to pollution by paying a little bit more for our vehicles, we all benefit from the decrease in toxic substances in the air we breathe and even from the decreased harm to the ozone layer, which shields us from dangerous ultraviolet rays. If all of us or some subgroup of us prefer the state of affairs in which we each pay this bit over the state of affairs we do not, then the provision of cleaner air is a collective good for us. Unfortunately, no one, not even me, pays enough attention that I'm polluting less. As a result, I might not do my fair share of efforts to prevent air pollution. I might be a free rider (or free rider) on others' constructive actions.

1.2. Why Should Reduce Free-Riding Phenomenon

It is significant to reduce free-riding in many aspects. Firstly, it might result in an inefficient distribution of commodities or services because it hinders the production and consumption of goods and services using traditional free-market mechanisms. Under- or non-provision of goods and services may result from free-riding. Public commodities that are non-excludable and non-rivalrous, or those that cannot be prevented from being used or benefiting from by those who do not pay for them, are prone to the free-rider dilemma. To prevent free-riding, methods that guarantee users pay for public goods can be implemented, such as government actions, societal pressures, and collecting payments.

Moreover, since the person who gets free rides can share the benefit without contributing, it can also promote unfairness. Previous research highlights negative emotions and punishment toward free riders, emphasizing moral implications [4]. Thus, we must understand the reason behind free-rider and reduce the phenomenon's occurrence.

1.3. The Logic Behind the Free-rider Phenomenon

Prisoner's dilemma serves as the strategic foundation for the logic of collective action [5, 6]. The following tale gives rise to the term "prisoner's dilemma." Two convicts who are being jailed for a crime that the district attorney believes they committed together are confronted by her. Since she lacks proof to accuse them of the crime in court, she creates a situation that forces both of them to confess. The following proposal is made to each by a prosecutor. "You have the option of confessing or not. I will dismiss all charges against you and use your testimony to get your accomplice to spend severe time if you confess, but your accomplice keeps quiet.

In the same way, if your accomplice confesses and you don't, they will be let off while you do your sentence. Even though I receive two convictions, I will ensure you both receive early parole if you both confess. I'll have to settle for insignificant sentences on accusations of possessing weapons if you both don't speak. Before my return the following day, you must leave a message with the jailer if you intend to confess.

The "dilemma" that the convicts are currently facing is that, regardless of what the other does, each would be better off confessing than keeping silent. However, the result they both get by confessing is worse for each of them than the result they would have both achieved by remaining silent. The struggle between individual and collective reason is sometimes seen as being shown by the problem. An organization whose members behave against their best interests might come out worse than one whose members operate in their best interests. A group whose members rationally pursue any goals may, more generally, experience less success than they would have if they had not rationally sought their individual goals. This is true even when the payoffs are considered to reflect self-interest.

About the common free-rider problem, there cannot be a free rider if the two members agree on whether they will act alone or together unless one is altruistic. Thus, the occurrence of a free-rider is somewhat inevitable regarding the prisoner's dilemma.

2. Literature Review

The free-rider problem is often associated with individualism, but Wagner explores exceptional cases, suggesting collectivist groups may opt for individualistic solutions [7]. Contrary to the assumed strong group orientation among Japanese, Yamagishi found they would exit groups without monitoring, emphasizing cultural influence [8]. Evolutionary game theory proposes solutions to free-riding, necessitating exclusion, cooperation incentives, or reduced welfare for free riders. The Moral Violator Rule underscores the significance of the free-rider problem and its implications on morality [9].

2.1. Research Design

This natural experiment examines potential causal relationships between individuals' relative individualism-collectivism tendencies, the independent variable, and free-rider behavior, the dependent variable, as measured by the frequency of in-game actions contributing to the final goal.

2.1.1 Controlled Variables

(1) Group size: Each group comprises 8 participants, evenly divided between individualists and collectivists. (2) Participant variability: Participants will be assigned to different trials by matched pairs. (3) Language: English. (4) Emotions: Allowing participants to explore the experimental room beforehand may reduce potential stress. (5) Experimenters: The experimenters will wear uniforms and remain outside of each room to prevent giving subconscious clues. (6) Experimental rooms: Each experimental room has an air conditioner, a table, a chair, a computer with voice call and Minecraft,

and potable water. (7) Researcher bias: A double-masked method can ensure that no one knows who possesses specific cultural values. (8) Participant expectancy: Deceptive methodologies can mislead participants into thinking that the research assesses the time it takes to complete a task. Following that, a debriefing will be provided. Anonymity

2.2. Research Hypothesis

Possessing individualistic values decreases an individual's chances of free-riding in a group compared to collectivistic beliefs.

2.3. Sampling Method

The following procedures will be followed to conduct the study: (1) Recruitment: Self-selected samples will be recruited online through social media platforms, university websites, and online forums. The participants should be international undergraduates aged 18 to 22, with half being individualistic and the other half being collectivistic. (2) Culture Orientation Scale: Participants will complete a Culture Orientation Scale individualism-collectivism test to assess their values. The Horizontal and Vertical Individualism and Collectivism Scale (HVICS) will be used to assess individual-level, horizontal, vertical, and vertical individualism. (3) Language proficiency: Participants should be able to communicate and play Minecraft in English. (4) Informed consent: Participants will complete an informed consent form before participating in the study. The form will include information about the purpose of the study, the procedures involved, the risks and benefits, and the right to withdraw at any time

2.4. Materials

(1) Eight separate rooms. (2) 8 complete gaming setups (pc, keyboard, mouse, headset). (3) 8 Minecraft accounts (set up with the according account name and skin). (4) 1 survival Minecraft server. Voice changer application. (5) Proximity chat. (6) Screen and voice recording applications.

2.5. Procedure

Eight participants, consisting of 4 individualists and four collectivists, have previously been identified through a separate scale within a room. In the room, they are provided with a complete gaming set-up and a Minecraft login, which will introduce them to an account with the in-game skin and the name of a color. The 8 participants will be provided with a server to join, and once they join, they may communicate with each other via proximity chat with a voice changer or through regular in-game chat. The group will be introduced to the objective of building a house consisting of iron blocks, iron doors, and glass. Within the next two hours, the group is given complete freedom within the game, and at the end, their performance will be evaluated through quantitative data provided by observers. This experiment will be conducted with five groups.

2.6. Quantitative Measure 1

Each participant in the first quantitative measurement will be given a color; the collectivists will receive the colors black, pink, red, and orange, while the individualists will receive the colors yellow, green, blue, and purple. Additionally, seven factors can be used to assess a player's free-riding tendencies: the placement of blocks, the collection of iron, sand, wood, and stone, the creation of furnaces, and the melting of objects. The total contribution will be added according to the number, and the bigger the number is, the less likely the individual will be perceived as a free-rider.

Through measuring in-game actions that contribute towards the final goal, their level of participation and contribution may be calculated into a final score.

2.7. Quantitative Measure 2

To ensure the objectivity of the experiment, the author will apply another quantitative measurement with the mediation model, which explains the relationship of the variables in the

experiment. The model illustrates that there is no direct causal relationship between the independent variable and the dependent variable. The independent variable first influences the mediator variable, which influences the dependent variable. The mediator variable we will measure is indicative of typical free rider behavior, including the degree of contribution, dependency on others, and degree of engagement [10]. Furthermore, to analyze participants more closely, their screens will be recorded during the trial, monitoring their behavior.

When assessing the degree of contribution, this measurement considers a player's overall participation in the construction process, going beyond merely looking at the first group of quantitative results from tests. For example, it considers activities such as clearing the land for their house or helping with the lightning while digging the iron. The second scale examines each player's dependency on others. If players regularly follow others to search for resources and only take what is left behind, they may be considered free riders. The third criterion is the degree of engagement, which assesses a player's role in the construction process. From this aspect, if a player takes the initiative or acts as a leader, they can be less likely to be perceived as a free rider within the group.

A Likert scale will be created, including five trials. Like the first quantitative measurement, each participant will be given a color; the collectivists will receive the colors black, pink, red, and orange, while the individualists will receive the colors yellow, green, blue, and purple. Specifically, three aspects include degree of contributions, dependency on others, and degree of engagement. Ranging from none contribution (0), relatively less contribution(1), neutral(2) , relatively more contribution(3), most contribution(4); Strong dependency(0), relatively more dependency(1), neutral(2), relatively less dependency(3), and no dependency(4); No engagement(0), relatively less engagement(1), neutral(2), relatively more engagement(3), and most engagement(4). Ultimately, every participant's score will be added from 0 to 12. The greater the score is, the less likely they are a free-rider.

2.8. Result

The author has also found a lot of literature that can support our hypothesis. From Wagner's perspective, free riding and social loafing may represent the pursuit of extreme individualism [7]. On the other hand, collectivism values the interests of the group. Still, the excessive contribution of collectivism to the well-being of the group may cause them to feel tired and weaken their ability to contribute, ultimately threatening the group's performance and even their survival. In this case, cooperation is no longer only the individual 's contribution to the group, but they will retain some minimum reserves so that the group can survive. According to Olson he thinks that in a group, even if people have a common goal and the group's interests can reach a consensus, this does not mean that the cost-sharing can reach a consensus [10]. That is to say, even if people are willing to cooperate, there will be differences on the issue of cost sharing. According to our literature review and experiment, the author expects that our result is collectivism is more likely to have free riders.

2.9. Evaluation

The author will discuss some strengths and limitations for further experiment evaluation. The first is the sample advantage. The sample includes males and females, enhancing diversity and generalizability to broader populations. The author also utilizes a volunteer sampling method to reduce experimenter bias and increase participant commitment.

The second is the high reliability of the result. The experiment demonstrates high reliability through straightforward and controlled procedures, minimizing extraneous variables' impact. Also, the authoritative questionnaires and quantitative measures ensure consistent analysis and comparisons in future replications. And the Multiple observers rate participants' behavior, adding inter-rater reliability.

In addition, the experiment demonstrates high validity. The experiment exhibits high ecological validity, simulating realistic scenarios of free-riding in young generations' lives with a well-controlled setting enhances internal validity, attributing variations to cultural values.

The study also adheres to ethical considerations, debriefing, informed consent, and participants' right to withdraw. The findings have practical implications and application potential, informing interventions to discourage free-riding tendencies and target equitable contributions and collaboration in various contexts and even social dilemmas, with acknowledgment of the two distinctive cultures.

There are several limitations to the experiment that need to be considered. These limitations include (1) Group size: The sample size of the experiment may not be large enough or too single-inclusive, which means that the conclusion of this experiment cannot be used in all groups of people. (2) Recruitment strategies should not be randomly selected, and psychological and developmental research has been critiqued for the lack of diversity of research samples. (3) Psychological state: The author has not yet learned about the psychological state of those participants since some participants may be panicking while playing collaborative video games. (4) Boredom: Many participants may get bored since the experiment time may be too long, and they may not take the experiment seriously or show the behavior of the "real world." (5) Self-assessment: Many people may lie during the self-assessment, which can lead to specific errors when the author attributes them to whether collectivist or individualist.

3. Conclusion

In conclusion, past studies have suggested that Wagner's concepts of free-riding and social loafing may be used to describe the pursuit of extreme individualism. Olson believes that in a group, even if individuals have a shared objective and the group's interests can come to a consensus, this does not imply that cost-sharing can also. In this experiment, the author assesses individuals' tendency to become free-riders according to their cultural background. Despite the constraints of our experiment, the author anticipates that collectivism will lead to more free riders. The anticipation for free riders in the future is that it will occur more frequently in different circumstances to lessen the phenomenon.

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