

Personality traits and conformity tendencies: a comparison of face-to-face and online situations

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Abstract. We investigated the relationship between conformity and personality traits among Japanese university students. The effect of peer pressure was compared in face-to-face and online settings. A combination of questionnaires and conformity experiments was used. The TIPI-J was used for the personality test, and the experiment was based on Asch's conformity experiment. In the online setting, a video meeting tool was used. The results showed a positive correlation between agreeableness and conformity rates in both settings.

Keywords: Conformity · Personality · Online Meeting · Online Experiment.

1 Introduction

In social life, people are influenced by various factors to change their attitudes and behaviors. One of the main themes of such social influences is conformity. Asch's experiment, which revealed the tendency to conform, is a well-known study on this topic. Regarding Asch's experiment, it has been pointed out that individual differences in conformity tendencies affect the results. The purpose of this study is to understand the personality factors that cause the tendency to agree with others in a group by combining a questionnaire to measure individual personality traits and a face-to-face conformity experiment. In addition, the relationship between conformity and personality traits was examined in an online environment. Agreeableness was correlated with conformity in both face-to-face and online environments.

2 Background

2.1 Asch's Conformity Experiment

The Asch conformity experiment is an experiment reported in 1951 by social psychologist Solomon Eliot Asch that examined human conformity behavior [1]. Asch's experiment showed that even when the correct answer to a question is obvious, people tend to conform and choose the wrong answer when those around them choose the wrong answer. In the Asch conformity experiment, participants

were presented with a reference line segment and asked to choose a segment of the same length from a list of alternatives. The correct response rate for this task by a single participant was more than 99%, making it a fairly simple task that can be answered correctly by anyone under normal circumstances. The actual experiment was conducted with one participant and seven collaborators or confederates, for a total of eight participants. Ash instructed the participants to answer the questions in advance, and in 12 of the 18 trials, all participants deliberately chose the wrong answer option. This process of exerting synchronization pressure on the participants is called a pressure trial. They measured how the experimental participants make decisions under 12 pressure trials. The results showed that 74% of the experimental participants conformed at least once, and the overall conformity rate (equation1) was 32%.

$$\text{Conformity rate} = \frac{\text{Total number of times all participants conformed}}{\text{Total number of pressure trials}} \times 100 \quad (1)$$

2.2 Online Conformity Experiment

There have been studies replicating Asch’s experiment in different settings. Kyr-litsias and Michael-Grigoriou studied conformity in virtual reality setting [6]. It differs from our study in that we compared face-to-face setting and online setting with real human, but they compared virtual human with real human. There is a replication of Asch experiment using video conferencing tool as we did [9]. However, the participants were anonymized and is different from our setting where face-to-face relationships are brought online.

3 Experimental Procedure

3.1 Explanation of the Experiment and Completion of the Informed Consent Form

The following is a summary of the overall procedure of the experiment. In the face-to-face study, we conducted an experiment on 20 third and fourth year university students in the same department of the same university. Three pages of experimental instructions, a consent form, and a questionnaire were distributed to the participants. During the explanation of the experiment, since it was necessary to conceal the fact that it was a conformity experiment from the participants, we falsely explained that the purpose of the experiment was to examine the relationship between problem solving ability and personality traits. Participants were then asked to fill out a consent form. The experiment was conducted in groups of four, consisting of one participant and three confederates. Previous studies have shown that social pressure is maximized when there are three to four confederates [1]. For ease of experimental preparation, three collaborators were used in this study. The three experimental confederates were university students who were acquaintances of the experimenter and were the same for all experimental sessions. Participants were debriefed after the experiment, and

their consent to use the data was confirmed after the purpose of the experiment was explained.

In the online study, the explanation was conducted in an online environment (Zoom) and the participants answered the questionnaire using Google Forms. The time required to complete the questionnaire was approximately 5 minutes. A conformity experiment was conducted with one participant and three confederates, for a total of four individuals. Six university students participated in the experiment, one in each session. The procedure of the experiment and the debriefing was the same as in the face-to-face setting, except that it was conducted via a video meeting tool.

3.2 Questionnaire

In this study, we used the Japanese version of the TIPI (TIPI-J) [8], which is a Japanese version of the personality measurement scale based on an existing scale, TIPI [4]. The TIPI-J consists of 10 items and measures the Big Five factors (openness, conscientiousness, extraversion, agreeableness, and neuroticism) with two items each. Compared to the original TIPI, some of the verbal expressions and scoring methods have been changed. The Japanese version of the TIPI has been confirmed to be sufficiently reliable and valid [7]. Participants were asked to respond to each item on a 7-point scale. There are two questions for each personality trait. The total score of the two items is used for scoring. Thus, the scores of the personality traits take values between 2 and 14.

3.3 Conformity Experiment

The experiment was modeled after the Asch conformity experiment described in section 2.1. The details of the conformity experiment conducted in this study were as follows. A total of 10 questions were used. In addition to line comparison questions, as in the original Asch conformity experiment, there were several types of questions, including simple arithmetic, language, geometry, logic, and memory questions. By having the confederates answer the questions first, the participant who answered last was pressured into conformity. By setting the even numbered question out of 10 questions as the pressure trial, each participant received 5 pressure trials. For 20 participants, we obtained a total of 100 pressure trials. If a participant gave an incorrect answer during a pressure trial, we considered conformity to have occurred. If the participant gave a correct answer or said "I don't know" during the pressure trials, no conformity was considered to have occurred. For the odd-numbered questions, the correctness of the answer is not questioned (not used as data).

In the online setting, group members participated in the experiment via Zoom, an online conferencing tool, and were presented with questions on the Zoom screen to answer orally (Figure 1). The group members had their cameras turned on so that the other members could see their faces. The questions were presented by the experimenter as a screen-sharing presentation. The questions consisted of 10 questions that were the same as in the face-to-face setting and

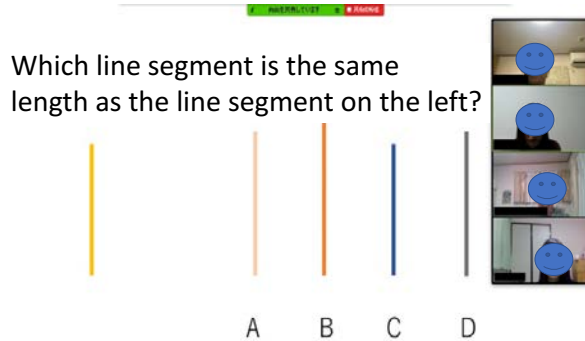


Fig. 1. Online experimentation status.

were common to all groups. Specifically, the tasks performed on each pressure trial were as follows:

- Q2:** Line segment comparison question (colorless)
- Q4:** Geometry question
- Q6:** Line segment comparison question (colored)
- Q8:** Mathematical knowledge question
- Q10:** Memory question

The second question is the same as in Asch's experiment, where the subject selects a line segment of the same length as the one shown as an example, while the sixth question is a colored version of the first question, corresponding to the material shown in the center of Figure 1.

4 Results

4.1 Results of conformity experiment

The results of the face-to-face experiment showed that 85% of the participants in the conformity experiment conformed at least once, and the overall conformity rate was 33%. The results are similar to the results of the original Asch conformity experiment presented in the 2.1 section, indicating that the conformity pressure worked as expected.

In the online environment, as in the face-to-face environment, a tendency toward conformity was observed. All participants in the online conformity experiment engaged in at least one conformity behavior, and the average rate was 43%, suggesting that the pressure to conform may have been stronger in the online environment compared to the 33% in the face-to-face setting. The difference

may be due to the nature of the interface of the online conferencing tool, i.e., the fact that participants observe the facial expressions of other session participants more directly than they would in a face-to-face situation. The highest conformity rate was 67% for the fourth question, calculating the area of a figure, followed by 50% for the eighth question regarding mathematical knowledge. This is similar to the results in the face-to-face environment, where the maximum conformity rate was 60% for the eighth question and the next highest rate was 40% for the fourth question. Thus, it is suggested that the likelihood of conformity depends on the nature of the question that the participants in the experiment are working on. The results is similar to the reported results on task ambiguity and conformity [5]. While conformity is more likely to occur in collectivist cultures, it has been pointed out that in Japan, conformity is less likely to occur among students who do not perceive other session participants as belonging to the same group as themselves [2]. It is necessary to investigate the cause of the relatively clear occurrence of conformity in the present experiment, even when the participants were students who did not know the other session participants.

4.2 Relationship between conformity rate and personality factors

To examine the relationship between the rate of conformity and each personality factor, the correlation coefficient between each personality factor and the rate of conformity was calculated. Figure 2 shows a scatter plot of the data on agreeableness and conformity rate. The horizontal axis is the agreeableness score and the vertical axis is the conformity rate, with each point corresponding to a participant in the experiment. We found a relatively strong positive correlation ($r = .43$) compared to other personality factors. Figure 3 plots the data on agreeableness and conformity rate in the online environment. The correlatoin was stronger in online setting ($r = .85$). In the online environment, as in the face-to-face environment, the tendency that the participants become more attuned as their agreeableness increases can be confirmed.

Collectivist countries tended to show higher levels of conformity

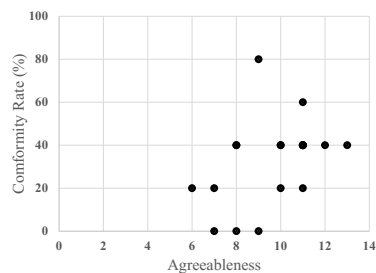


Fig. 2. face-to-face setting

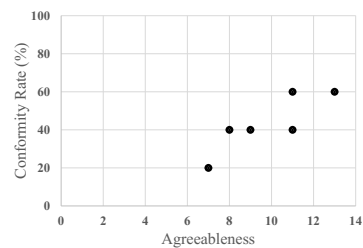


Fig. 3. Online setting

5 Conclusion

A combination of a questionnaire survey and a conformity experiment was used to examine the personality factors that cause conformity. In the face-to-face conformity experiment, the same conformity tendency as in the previous study was observed among Japanese-speaking university students. The questionnaire revealed a positive correlation between the participants' agreeableness and the rate of conformity. The same experiment was conducted in an online environment. The experimental results confirmed that there is a correlation between agreeableness and the tendency to conform, even in an online environment.

It has been reported that there is a gender difference in online conformity [10]. Since we did not control for gender in our experiments, it may be necessary to consider personality traits along with the effects of gender. There have been studies of the relationship between personality and conformity using the Big Two, which is a further aggregation of the Big Five personality traits [3]. It is an interesting question whether other indicators show the same tendency in face-to-face and online environments.

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