The Environmental Factor within Solomon Asch Line Test

Hee Jin Jeon

***Abstract*—This research looks at the reproduction of Solomon Asch's Line Test of conformity. In order to test the original experiment with differing independent variables, such as the environment from which the participants were chosen as well as the level of the question given. For the testing of the experiment, two questions other than the one used in the original experiment were created. The goal of the research is to test the legitimacy of the line test with the difficulty of the question as a factor. The two original problems pertain to shape and multiplication. In the order of mention, the questions are considered easy, medium, and difficult. The conformity percentage for the line test was 0%, shape comparison was 16.6%, and mathematical equation was 33.4%. According to the data, the difficulty of the test does affect the level of conformity. Because the environment was not taken account of when picking samples from the population, however, the results of the data cannot be completely trusted. However, the influence of the environment in the experiment was clearly indicated through this research.**

***Index Terms*—Conformity, Asch, difficulty, environment.**

I. Introduction

Conformity possesses the general definition of harmonizing attitude, behavior, appearances, and any other forms of characteristics to match the norm within the environment. These norms are untold, implicit set of rules that are shared by a group of individuals. Their tendency to stay aware of one another also causes them to limit themselves within certain boundaries as regards to aspects they are able to control. Whether the transformation is real or imaginary, the phenomenon is always called conformity. Otherwise known as "majority influence", the term, like its name, is the affect majority has in all fields. In other words, the minority changing themselves to fit the rest of the group is the epitome of conformity.

Despite the generally accepted fact "the essence of conformity is yielding to group pressure", conformity exists in multiple forms: normative, informational, compliance, internalization, ingratiational, identification [1].

Normal Conformity: It is the action of conforming to the group in the wish to fit in with the rest of the individuals. It is mainly due to the fear of rejection and becoming an outcast. This type of conformity usually involves a compromise of the private thought (rejection of group ideal) and the group thought (accept the widespread ideals).

Informational Conformity: Arises due to the individuals' incapability or ambiguity of their actions; they search for guidance from the groups. Unlike the normal conformity, informational conformity entails the adaption of the group views as personal.

Compliance Conformity: The concept involved with this type of conformity is similar to that of normal conformity. It involves publically announcing the conformity in order to fit in with a group all the while disagreeing privately.

Internalization Conformity: Openly agreeing to the group both publicly and privately; ideals are in accordance with the group.

Ingratiational Conformity: The type of taking on the group thought in order to impress and gain acceptance from the other group members. Other than the fact that peer pressure from the group does not affect the individuals' decisions, Ingratiational conformity is similar to normative conformity; the motivation comes from external results.

Identification Conformity: Unlike the other types of conformities, the identification is related to the image of the social role perceived within the community. Also, the private opinion does not have to take place similar to compliance.

In order to find out whether having other factors, such as the environment from which the participants are chosen from, had and affect on the conclusion, the line test was replicated inside CheongShim International Academy, Republic of Korea.

II. Solomon Asch Line Experiment

Background Information and Results

The Solomon Asch line test took place in the 1950s and is called the either Asch Paradigm or Asch Conformity Experiments. It tested normal conformity in order to see if individuals could stay firm with their beliefs even in the midst of oppositions [2].

Experiment procedure goes as so: there are eight people in the room. Other than the one subject being tested for conformity, others are informed of the situation. Before the experiment begins, the confederates agree to one solution, which is not the correct solution. The test of conformity takes place for the last answerer, the real subject [3].

The results of the test were concluded as 32% of the participants conformed in the critical trials on the average and over 12 critical trials, 75% of the participants conformed into the incorrect answer. However, in the control group, less than 1% of the participants gave wrong answers [4].

After the results were concluded, the participants who conformed to the majority opinion were asked the reason for their doing so [5]. From the questioning, it was found that the two reasons for conforming was either normative (wanting to fit in with the group) or informational (thinking group is better informed).

The line test only dealt with five independent variables (size of group, social support, privacy, status of majority

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group, and difficulty of task) and this reproduction of the experiment was meant to confirm the legitimacy for the difficulty of the problem given to the participants.

III. Materials and Methods for Reproduction

In order to fill the participants, posters recruiting members for the test were distributed throughout the entire 7th and 8th grade students' classrooms. The school from which the participants were picked was CheongShim International Academy, Republic of Korea. According to the poster/announcement of the recruitment, the participants were to send a text to the number given below the recruitment. After the test, they were promised a chocolate bar each.

30 individuals, ranging from 13 to 14 of age were chosen for the experiment. There were 12 males and 18 females within the total participants.

In all, the 30 students that were gathered got divided into 6 groups of 5 people each. There were two males to each test and three females combined to make five. The groups were chosen by random number generator with n_1 equaling 12 (number of males) and n_2 equaling 18 (number of females). The test took place in the 5th floor of the school using 6 classrooms at a time to test for the conformity. There were 12 experimenters aiding with the experiment and in a pair the experimenters went into the classrooms.

Inside the classroom there were five desks and chairs facing the black board and to the left corner was the projector which displayed the power point with the three questions (see Fig. 1).

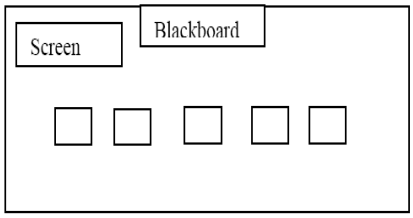


Fig. 1. Layout of the classroom.

Before the experiment could begin, the 4 students were placed into the room and one experimenter inside would inform the 4 participants that they were collaborating and would agree on the wrong answers for all three questions. While this was happening inside the classroom, the other researcher from the pair would single out one participant and ask him about how he/she was enjoying the school and etc, anything to keep the subject from realizing the test. The subject was chosen by another random number generator between either the females or the males. The first room would have a female as a subject, the second room would have a male, the third room would have a female, and the fourth room would have a male, the fifth a female, and the sixth a male. Once the explanation was finished inside the classroom, the experimenter inside would signal the partner who would escort the subject inside.

The seating was made so that the subject being tested of conformity was sitting on the right most desk so he/she would be the last person to answer the problem. Before the power point could be shown to the participants, the two experimenters gave out the same instructions of: "You will now be shown three questions. The first question will test your vision, the second your perception, and the third your logic. You will be given exactly 5 seconds to view each question. After looking at the question, the experimenter will ask for your answers starting from the right. After each question is finished, we will not tell you whether the answers are correct, but move on right away to the next question. Once the testing is over, you will stay seated until we officially announce the end of the testing."

With these instructions, the experimenters would start the power point questions. The first question was the original question Asch utilized within his test: the comparing of the lines. There were four lines on the slide. The 3 lines on the right were in sequence of short, long, and medium. Then on the right side of the slide was the medium line that was exactly the same length as the medium line on the left side.

Fig. 2. Line test

The three lines on the right are drawn so the difference among the lines can be distinguished at a glance. After 5 seconds of the question, the screen is blacked out and starting with the right, the participants give their answers (see Fig. 2).

After each student answers the question aloud, the experimenter puts up the next question. The second question is the comparison of shapes. From the three shapes given, the participants are made to choose the shape with largest area. The three shapes starting from the left are: square, circle, and rectangle (see Fig. 3).

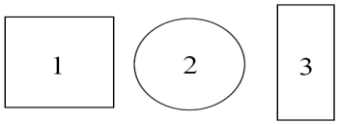


Fig. 3. Area comparison of shapes.

Like the line question before, after 5 seconds, the screen went black and the answering moment began.

The last question was the most difficult of the three. The questions were numbered from one to three in the level of difficulty. It was a mathematical question involving additions, subtractions, and multiplications. For the last question of the experiment, there were no choices from which the participants could choose from (see Fig. 4).

3+8+6-9(6)-11+6+54-6+8(2)-10

Fig. 4. Mathematical equation.

After all three of the questions were shown and answered—like the two questions preceding the equation—the experimenters kept the students inside each classrooms until all 6 groups were done with the experiment.

With the data from each classroom, the results were put into excel indicating whether the subject conformed to each of the questions.

IV. Results

The results of the experiment came out as conformity being the highest for the last question and lowest for the first question. In fact, there was no one who conformed to the first line test. In all six classrooms and groups, the subject, whether it is male or female, stated his/her answer without giving into the majority.

However, starting with the second question, the results were different. Out of the 6 subjects, 1 conformed to the wrong answer of choosing the rectangle over the square (the answer). The classroom in which the conforming student was located in was classroom number 1, a female.

The last question resulted in the highest conformity level. Out of the 6 subjects, 2 conformed to the wrong answer and the other four subjects were able to calculate the answer in 5 seconds and not conform to the majority. The two subjects were in classroom 4 and 5, male and female.

TABLE I: Conformity Level Per Question

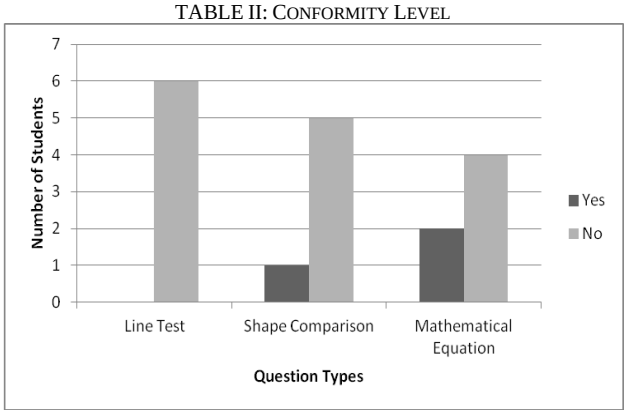
	Line Test	Shape Comparison	Mathematical Equation
Classroom 1	X	O	X
Classroom 2	X	X	X
Classroom 3	X	X	X
Classroom 4	X	X	O
Classroom 5	X	X	O
Classroom 6	X	X	X
Total Conformed	0	1	2
Percentage Conformed (n=6)	0/6= 0 0%	1/6= 0.167 16.7%	2/6= 0.334 33.4%

As the table above shows, the level of conformity for the first question was 0 out of 6 people, 0 percent. The conformity for the second question was 1 out of 6 people, 16.7 percent, and the conformity for the third question was 2 out of 6 people, 33.4 percent (see Table I).

V. Discussion

The results of the experiment show that the level of conformity increases with the rise of the difficulty of questions. While the first question, the easiest among the three, had zero people conforming to the other people's answers, the second question 1 subject conform. Then the last question made 2 subjects conform to the majority. It is clear that the level of the question definitely influences the percentage of conformity. It can be said that the question level and the conformity frequency has a positive correlation (see Table II). As the difficulty of the question rises, the conformity level also rises.

TABLE II: Conformity Level



The Yes and the No on the figure above indicate the affect of conformity and whether the subjects gave into the majority.

The possible reasons for such outcomes can be placed on the environment from which the participants were chosen from. Because CheongShim International Academy is a private boarding school in which the students are selected after viewing elementary/ junior high grade point average and also an interview with the school faculty, the pool in which the samples were chosen from could be a selection bias from the beginning. Also, all students that attend the school were chosen in the interviews for their passion, individuality and outgoingness. These types of students are very unlikely to give into the majority even if their ideas or answers may sound correct. The tendency of most students at the academy is to state their opinions without considering the external say. It is a possibility that this characteristic influenced the results of the experiment because usually people who want to fit in (Normative Conformity) or unsure of themselves (Informational Conformity) give into the majority group. However, because the students at CheongShim do not fit into neither of the categories, the results of conformity for questions 1, 2, and 3 could have ended up higher than it really is in the general society. For example, the original study done by Solomon Asch took place in Swarthmore, USA. Rather than choosing from various people of both gender and differing age groups, Asch only chose male students in the 20-23 age group. It was because of such sampling that the results could not be generalized for everyone. The same is the true for this reproduction as well. Also, the participants within the experiment were all volunteers, so the chances of them realizing and conforming despite their knowledge about the experiment may have increased the level of conformity and skewed the data.

Another limitation of the experiment and the produced result could have been due to the small sampling number of the students. Due to everyone above the age of 13 and 14 being knowledgeable about the Line Test, the sampling was limited to the young age group. Because of this reason, the possible number of samples that could be taken from the population was limited to being with. The restriction on the population number was not the only impediment within the experiment. Even though the number of sample was 30 in total, from the 30, only 6 were selected as the subject while the rest of the 24 students were simply cooperating with the

experiment; they were not being tested at all. Further research on the subject should include greater number of samples in order for the results to be generalized.

Lastly, the mismatch of the gender within the groups was also a limitation. Had the males been in a room full of only males and the vice versa for the female, the results would have turned out different due to the existence of the uniform gender and no opposite gender to take notice of [6]. Because the people of both gender were amalgamated into one classroom according to the random number generator according to the gender. Dividing the participants into established groups is a bias from the beginning of the experiment because it influences the actions of the students directly. For example, males would have had more confidence to speak out against the majority opinion if the students within the classroom were of the same gender or the females would have been able to conform less in front of differing genders.

Related experiments to the line test were (1) Stanford Prison Experiment. The experiment took place in the basement of Stanford in which participants were gathered and split into two groups: guards and prisoners [7]. The prisoners were stripped of all humane symbolisms, such as the number, and replaced with that of a real prisoner. This experiment delves into the similar field as conformity because the participants, both guards and prisoners, conform to the stereotyped beliefs people have of their roles which affect their behaviors. Rather than there being an answer and people conforming to fit in with the rest, this Prison experiment was to test the conformity of ideology and action.

Before the Stanford Prison Experiment was conducted, Philip Zimbardo (experimenter) calculated the response of the prisoners and the guards in accordance to their roles. He made a speculation of fear, resistance, and repression; all the factors included within all prisons.

As the graph of the simulation displays the calculations on Fig. 2, the prisoner resistance was to rise slowly and pick up the pace until it reaches the climax at day 5. Also, the repressions by the guards on the prisoners were supposed to increase along with the resistance, but a little slower until the fifth day when it continues rising and the resistance plummet quickly down to the axis.

The above graphs, both the actual and simulation data, the contain lines which represent the prisoner fear, repression by guard, resistance perceived by guards, and the prisoner resistance. It clearly shows the conformity people made with themselves as the time (days) passed by. According to simulation of the experiment, the prisoner resistance was supposed to rise along with the repression by guards increased, but the actual data displays the top line, repression by guards, continually increasing while the prisoner resistance falls quickly after reaching the peak at day 4. Because the participants in both roles conform to their stereotyped behaviors within the society, the predicted results are incongruous to the actual data. Also, the prisoner's fear indicates the conformity as well. While the first 2 days the levels stay constant for both simulation and actual data, as the days pass, the fear for actual data rise rapidly while the simulation shows a speculation of a slower increase of the fear (see Table III and Table IV).

TABLE III: STANFORD PRISON EXPERIMENT SIMULATION

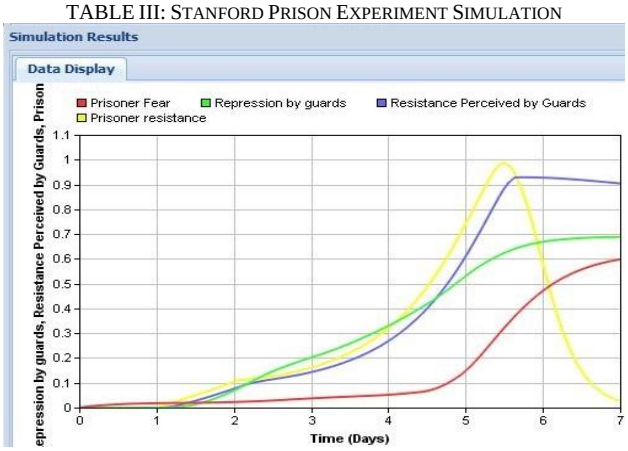
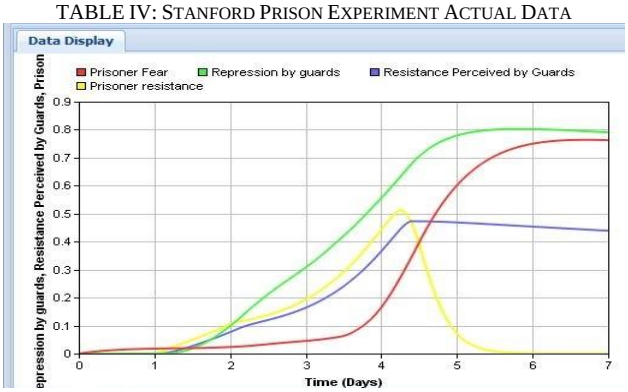


TABLE IV: STANFORD PRISON EXPERIMENT ACTUAL DATA



Stanley Milgram experiment of obedience is also in relationship with the conformity experiment that is dealt in this research paper as well as Asch's line test [8]. The action of following and giving into the experimenter's words (the gist of Milgram's experiment) and administering increasing shocks with each wrong answer is a form of conforming. Even though the situation is not so that the majority's opinion or words influence that of the minority or an individual, but words from people who are "educated" and "powerful." [9] This is a form of obedience or conforming to the higher status.

VI. CONCLUSION

The initial purpose of the experiment and the reproduction of Solomon Asch's Line Test were to place the difficulty of the problem as an independent variable. Through the experiment, the conclusion to support that there is a positive correlation between the difficulty of question and level of conformity.

However, the influence of the environment from which the participants are taken was found also to influence the results and the data received. Due to the uncertainty and the probably consequences resulted from the selection bias, the data turned out to be fallacious. It is difficult to take the results as legitimate and the possibility of an instance cannot be ignored and must be taken into account.

Even though the experiment was a failure and cannot be used to make a conclusion about anything significant, it displayed that the factor of the environment can change the data and even the conclusion of the experiment.

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REFERENCES

[1] M. Saul. (2007). What Is Conformity. Simply Psychology. [Online]. Available: http://www.simplypsychology.org/conformity.html.
[2] Z. Vander. (2013). Conformity. [Online]. Available: http://www3.nd.edu/~rwilliam/xsoc530/conformity.html.
[3] Asch Conformity Experiments. Wikipedia. Wikimedia Foundation. (2013). [Online]. Available: http://en.wikipedia.org/wiki/Asch_conformity_experiments.
[4] M. Saul. (2013). Asch Experiment. Simply Psychology. [Online]. Available: http://www.simplypsychology.org/asch-conformity.html.
[5] Y. L. Zhang, *Solomon Asch Conformity Experiments*, Peel Schools, Sept. 2013.
[6] P. A. Deborah and E. Carranza, *What women and men should be, shouldn't be, are allowed to be, and don't have to be*, publication, Blackwell, no. 26, 2002.
[7] Stanford Prison Experiment. SystemsWiki RSS. [Online]. Available: http://www.systemswiki.org/index.php?title=Stanford_Prison_Experiment.
[8] E. G. Billikopf. (2003). Milgram's Experiment on Obedience to Authority. Milgram's Experiment on Obedience to Authority. University of California. [Online]. Available:http://nature.berkeley.edu/ucce50/ag-labor/7article/article35.htm.
[9] M. Saul. (2007). The Milgram Experiment. Milgram Experiment. [Online]. Available: http://www.simplypsychology.org/milgram.html.

Hee Jin Jeon was born in Iksan, Republic of Korea in 24 June, 1995. Until second grade, Jeon studied in the rural area of Gang Won Do. At the age of 9, Jeon went to Calgary, Canada. Then in age 12, Jeon moved to Chicago, United States of America. There Jeon graduated Wood Oaks Junior High School and moved onto Glenbrook North High School. After a year of attending, Jeon moved back to Korea and attended the senior year of Junior High, ultimately graduating Wabu Junior High School. In 2010, Jeon was accepted into CheongShim International Academy and as of now, Jeon is a senior preparing for college at the High School. During the three years of High School, he volunteered at the Hana Hospital in a mental institution, helping carry out social programs for the patients. Jeon does not have any previous publications, but is currently working on publishing the research paper he wrote during his High School period. He is passionate about psychology in general, but the topic that holds most dear for him is Schizophrenia. Mr. Hee Jin Jeon is still a High School student, striving to learn more about psychology.