Trust Experiments
Field Report: How to Conduct a (Trust) Experiment

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This tutorial aims to give an idea of how the realization of a computer aided human behavior experiment could take place. Of course it is not exhaustive. It is rather a field report containing hints and examples from a small experiment conducted recently at the ETH Zurich, Chair of Sociology. The tutorial can be considered as a guidepost pointing to some important issues of experimental research.¹

¹ Recommended textbook: Friedman and Cassar 2004
Three levels of implementation

1. Realizing the whole project
2. Conducting a session
3. Running the experiment
Realizing the whole project

- Idea and hypotheses
- Implementation of treatment
- Recruitment and pretesting
- Conducting a session
- Data analysis and results
Idea and Hypotheses

- Intergroup Discrimination Experiments (Tajfel et al. 1971)
- Social bonds between birthdaymates (Miller et al. 1998)
- Are birthdaymates more trustful?
Intergroup Discrimination Experiments

Klee group vs. Kandinsky group
Subjects had to decide about division of points between two other subjects from different groups.

Group membership was known to the subject dividing the points.

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**Booklet for group preferring Klee**

These numbers are rewards for:
Member no. 74 of Klee
group

<table>
<thead>
<tr>
<th>25</th>
<th>23</th>
<th>21</th>
<th>19</th>
<th>17</th>
<th>15</th>
<th>13</th>
<th>11</th>
<th>9</th>
<th>7</th>
<th>5</th>
<th>3</th>
<th>1</th>
</tr>
</thead>
</table>

Member no. 44 of Kandinsky group

Please fill in below details of the box you have just chosen:

<table>
<thead>
<tr>
<th>Reward for member no. 74 of Klee group</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Reward for member no. 44 of Kandinsky group</th>
<th>Amount</th>
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<td>17</td>
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\(^2\) Tajfel 1981
Matrices were constructed such that it was possible to distinguish between several decision strategies:
- maximum joint profit (MJP)
- maximum profit for ingroup (MIP)
- maximum difference in favor of the ingroup (MD)
- fairness (F)

Achieving maximum difference in favor of the ingroup was the most important strategy (MJP < MIP < MD).
Fairness moderated the extent of ingroup favoritism (F → MD).
Social bonds between birthdaymates

- Unit relation: Individuals sharing an attribute tend to be perceived as unit or group respectively.
- Is sharing a birthday sufficient to create a unit relationship?
- If birthdaymates perceive themselves as unit or ingroup, they should exhibit higher rates of cooperation.
  → Do birthdaymates play more cooperatively in the Prisoner’s Dilemma than two actors with different birthdays?
Social bonds between birthdaymates

Prisoner’s Dilemma

- Subjects: 64 female undergraduates.
- Birthdates were known prior to the experiment.
- Participants had to enter identifying information before the experiment (including birthday).
- 2 rounds of 24 successive prisoner’s dilemma games with a fictitious partner.
Social bonds between birthdaymates

- In the first round, participants in the treatment group (same birthday) cooperated significantly more often than participants in the control group (not same birthday).
- After first round (fictitious) results were revealed to participants.
- Learning of one’s opponent’s behavior affected subjects’ behavior in the second round.
- Cooperative opponents increased subjects’ rate of cooperation and exploitative opponents affected subjects’ rate of cooperation negatively.
- Significant interaction effect between main treatment and opponents’ behavior.
Are birthdaymates more trustful?

Trust game

- Birthdaymates exhibit higher rates of cooperation (Miller et al. 1998).
- Is a trustor who has the same birthday as the trustee more trustful than a trustor who does not share this attribute with his trustee?
The experiment was programmed and conducted with the software z-Tree.\textsuperscript{3}

z-Tree (Zurich Toolbox for Readymade Economic Experiments) is a software for experimental economics.\textsuperscript{4}

A short introduction into the programming of experiments with z-Tree will be given in the second part of this tutorial.

\textsuperscript{3}Fischbacher 1999
\textsuperscript{4}http://www.iew.unizh.ch/ztree/index.php
Recruitment (general questions)

- What is the subject population?
- How many participants are necessary?
- How and when should subjects be contacted?
- What information should be contained in the invitation?
- What incentives can be announced?
Our subject population were the 130 students who applied for one of three sociology courses held in this semester at the ETH Zurich.

One course was about social cooperation. In order to avoid biased results, we asked this students to participate in the pretest only.

The topics of the other two courses were Scientific Misconduct and Economic Sociology respectively.

In all, we had 32 subjects 8 of which only participated in the pretest.
Lecturers of the two sociology courses announced in the lectures that students would receive an invitation to participate in an experiment (2 weeks before experiment).

The invitation which we sent by e-mail contained the following information (1 week before experiment).

- What the experiment roughly is about and how much money one could earn.
- An URL which led to the registration form and a short online-survey.
- An individual code which participants had to bring to the experiment in order to log on a computer in the lab.
- Where the experiment will take place and how to get there.
E-Mail

- A few days before the session we sent a confirmation to all students that have applied for the experiment.
- The students who did not apply for the experiment received once more an invitation.

SMS / Phone

- In order to make sure that the students who applied for the experiment attend the session we sent a reminder per SMS the same day as the session was going to take place.
- Those who did not give their mobile numbers we called the day before or sent a reminder per e-mail.
Pretests

- **Internal pretest**
  - Get the opinion of the experts.
  - Test the programmed treatment and the instructions

- **Pretest with invited subjects**
  - Test the recruitment procedure.
  - Be prepared to conduct the whole session.
  - Use post-experimental questionnaire to get feedback from the students.
  - Test the payment procedure.
 Conducting a session

Conducting an experimental session\(^6\) can be compared with the filming of a scene:

- The experimenter (director) controls the events that take place in the lab (on the scene).
- Another experimenter (director of photography) operates z-Tree on the experimenter PC (camera).
- The subjects (actors) play their roles according to the instructions that have been given to them.
- A script (screenplay) contains the information about who has to do what at which point in time.

\(^6\)see Fischbacher 2002
Sociolab (Chair of Sociology, ETH Zurich)

Sociolab
ETH Zurich
Chair of Sociology
Scheuchzerstrasse 70
CH-8092 Zurich
http://www.sociolab.ethz.ch/

Control Center

Computer Lab

Waiting Room
Preparing the Lab

- Start up the experimenter PC and the client PCs in the lab.
- Start z-Tree on the experimenter PC and open the treatments and questionnaires.
- Start the z-Leafs on the client PCs.
- Make sure you have enough money for the subjects’ payments.
Points to be mentioned in the instructions

- What is it about? (without telling too much)
- With whom and how do subjects interact?
- How to attain points or monetary units?
- What is the exchange rate?
- Where and how to get the money after the experiment?
- What will be roughly the course of the experiment?
- Further rules to be kept during the experiment (e.g. communication with others)
Decision situations in detail

- Games in extensive form are more comprehensible.
- Use neutral terms (hold, continue, left, right).
- Use colors to emphasize the subject’s position.
- What options does the subject have?
- How do the payoffs depend on the subject’s and its opponent’s decisions?
Decision situations in detail

- Second mover: Under what conditions is the subject able to make a choice?
- Which payoffs belong to the subject and which belong to its opponent?
### Quiz

Die Fragen in diesem Fragebogen beziehen sich auf die Instruktionen zum Experiment. Ihre Antworten auf diese Fragen ermöglichen es uns, zu überprüfen, ob Sie alles richtig verstanden haben.

Die Instruktionen zum Experiment, die Ihnen in gedruckter Form vorliegen sollten, dürfen Sie zur Beantwortung der Fragen benutzen.

**Quiz**

- Answers should reveal whether subjects understand the instructions.
- Quiz may also contribute to the comprehension.
- Check the answers with a prepared Excel-Sheet.
- Questions to which wrong answers have been given should be made clear for everybody.

<table>
<thead>
<tr>
<th>Frage</th>
<th>Antwortoptionen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ist es Ihnen klar, dass Sie in der ersten Runde sich an Position A befinden?</td>
<td>Ja, Nein, Unklar</td>
</tr>
<tr>
<td>3. Welche Entscheidung hat Ihr Partner in Position B getroffen?</td>
<td>links, rechts, Unbekannt</td>
</tr>
<tr>
<td>4. Die ersten 5 Fragen sind jetzt beantwortet. Welche Entscheidungen haben Sie getroffen?</td>
<td>links, rechts, Unbekannt</td>
</tr>
<tr>
<td>5. Sie sind an Position B und haben eine Punktezahl von 50 erreicht. Was meinen Sie damit?</td>
<td>Links, Rechts, Unbekannt</td>
</tr>
<tr>
<td>6. Wie hoch wird demnach Ihre Auszahlung in CHF sein?</td>
<td>0, 20, 15, 10</td>
</tr>
</tbody>
</table>
Test run

- Shows the subjects how the actual experiment will pass.
- Make subjects aware that the points attained in the test run are not exchanged into real money.
- Must there be a matching of subjects during the test runs?
- Should a subject’s stage in the test run depend on decisions of other subjects?
Test: information stage 1

Testlauf, Runde 1

Im Experiment werden an dieser Stelle Informationen zu Ihrem Mitspieler 1 eingeblendet.
Test: decision stage 1

Sie befinden sich im Spielbaum an Position A und können entweder "halten" oder "weiter" wählen. Wie entscheiden Sie sich?

Testlauf, Runde 1.

Im Experiment werden an dieser Stelle Informationen zu Ihrem Mitspieler 1 eingeblendet.
Test: information stage 2

Testlauf, Runde 2

Im Experiment werden an dieser Stelle Informationen zu Ihrem Mitspieler 2 eingeblendet.
Test: decision stage 2

Im Experiment werden an dieser Stelle Informationen zu Ihrem Mitspieler eingeblendet.

Ihr Mitspieler hat zuvor "halten" gewählt.

Sie befinden sich im Spielbaum an Position B und können entweder "links" oder "rechts" wählen. Wie entscheiden Sie sich?
During the experiment subjects should be alone in the lab. The progress of the experiment can be observed at the experimenter PC in the control center.
Experiment, Runde 1

Informationen zu Ihrem Mitspieler 1:

Geboren am: 15. April 1981
Anzahl Geschwister: 1.
Studium an: ETH Zürich
Semester: 8.
Experiment: decision stage 1

Experiment, Runde 1

Informationen zu Ihrem Mitspieler 1:

Geboren am: 15. April 1981
Anzahl Geschwister: 1.
Studium an: ETH Zürich
Semester: 8.

Sie befinden sich im Spielbaum an Position A und können entweder "halten" oder "weiter" wählen. Wie entscheiden Sie sich?

[Buttons: halten, weiter]
Experiment, Runde 2

Informationen zu Ihrem Mitspieler 2:

Geboren am: 10. März 1982
Anzahl Geschwister: 2.
Studium an: ETH Zürich
Experiment: decision stage 2

Informationen zu Ihrem Mitspieler:

Geboren am: 10. März 1982
Anzahl Geschwister: 2.
Studium an: ETH Zürich

Ihr Mitspieler hat zuvor "halten" gewählt.

Sie befinden sich im Spielbaum an Position B und können entweder "links" oder "rechts" wählen. Wie entscheiden Sie sich?
Ask questions that help to improve your experiments.

Ask subjects whether they would like to participate in further experiments.

Ask subjects whether they have an idea what the experiment was about.

Questions about attitudes and personality traits.
Our project is not finished yet...
References