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## Using Experimental Methods to Investigate Discriminatory Tendencies: A Lesson Report

Using dictator games in experimental analysis, this lesson report demonstrates the process and results of a postgraduate class project in which university students were instructed to scientifically investigate and explore one of German society's most hotly-contested issues: the level of discriminatory tendencies of non-Muslims towards Muslims. The results of this class project show little or no discriminatory tendencies toward Muslims. Instead, the university students under our investigation tended to act favorably, or at the very least, fairly toward Muslims. We expect that this lesson report can demonstrate how a postgraduate course can be conducted in an innovative way, empowering students to collect primary data and finishing a small scientific project during the span of a semester.

Dieser Bericht stellt die Prozesse und Ergebnisse einer experimentellen Studie eines Postgraduierten-Kurses der Universität Greifswald dar. Wir zeigen, wie Studierende das Thema Migration innovativ untersuchen können, indem sie neben theoretischen Lerninhalten an experimentelle Methoden sowie die Primärforschung herangeführt werden. Anhand eines Diktatorspiels wurden die teilnehmenden Studenten angeleitet, ein in der Öffentlichkeit kontrovers debattiertes Thema wissenschaftlich zu untersuchen: Diskriminierende Tendenzen von Nicht-Muslimen gegenüber Muslimen. Die Ergebnisse dieser Studie lassen jedoch nicht auf diskriminierende Tendenzen der Studenten schließen. Stattdessen deuten sie darauf hin, dass sich die Studierenden zumindest fair gegenüber Muslimen verhalten.

### Keywords:

Lesson report, dictator games, experimental analysis, Germany, Muslims, discriminatory tendencies

### 1 Introduction

Experimental research methods have been increasingly applied across a wide range of social science disciplines, from ethnography to political science (Kittel, Morton, 2012, p. 1; Xiang, Toyota 2013). In addition, several comprehensive textbooks have been published on the manifold applications of experimental methods in political science (Morton, Williams 2010; Mutz 2011), which provide overviews about various topics that can be studied using experiments.

Although laboratory experiments are often considered the gold standard for establishing causal inference in the natural sciences, they have only occasionally been used in the social sciences, and as an ideal application, have often been regarded as hardly feasible (King et al. 1994, 125; Morton, Williams, 2010, p. 31). However, next to technological developments, due to a rising critique on

observational studies and their shortcoming to allow causal inferences, the application of experiments has been advocated since the late 1990s (Morton, Williams, 2010, 3), and some see a future for political science as an experimental research discipline (Morton, Williams 2010, p. 529). A stronger established approach of experiments can lead to careful methodological considerations that minimize current shortcomings in quantitative political science studies (Schrodt 2013) and improve scientific outcomes.

We argue that experimental methods can offer distinct advantages over other research strategies, but should only be applied after it has been tested and proved to be a favorable strategy to investigate a certain question. Thus, students need to learn about the advantages and disadvantages of experiments, and understand when it is appropriate to employ an experimental method. To date, experimental methods are rarely taught to postgraduate students in political science – almost exclusively at top-ranking American universities – and in most cases only if their lecturers had previous formal training in experimental methods (Myers 2013, p. 13; Morton, Williams 2010, p. 22).

This lesson report aims at providing practical advice on how to teach experimental research methods to students. It documents the process and results of a postgraduate class project taught at the University of Greifswald where students were instructed to design an experiment to investigate students' discriminatory tendencies of non-Muslims towards Muslims in Germany. With a construct known as the dictator game, which is most often used in experimental economics, the lecturer

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led students to measure just how much non-Muslim players are willing to donate to a Muslim firm. From research design, data collection, data analysis, and report writing, students gained hands-on experience in using an experimental method to explore the highly-contested relations between Muslims and non-Muslims in their own society. This report is written by the lecturer of this course, interestingly a non-German, and two of the participating German students who shared the learning experiences.

The pedagogical purposes of this class project will be specified in the next section. The third section of this lesson report is a summary of the literature review which the lecturer led the students to conduct before embarking on their research project. Students were asked to review literature on four theoretical models used to explain discriminatory behaviors toward immigrants, and shed light on how such models can be applied to in-group/out-group bias toward Muslims in Germany. We also reviewed studies that have used experimental analysis to gauge discrimination in ethnic and migration studies, and discuss how such methods can be applied to the research presented here. In section four, we report the concrete research question and hypothesis that the lecturer and the students agreed to work on after class discussion. In section five, we share our experience of brainstorming and finding a valid and innovative research method, design, and dataset. In section six, we present an analysis of the experimental data collected by the students and explore the implications of the findings. Finally, we conclude by discussing what the lecturer and the students have learned from this collaborative learning experience and propose recommendations for future class projects.

## 2 Pedagogical Design and Purposes

Prior to taking this module, most students had no experience with primary empirical research processes, although they had learned theories and research methods in other modules and were able to run statistical analyses of secondary data. In addition, none of the students had been previously involved in experimental methods.

The lecturer had received previous training of experimental methods at the University of Konstanz in Germany and had decided to share this method with the students at Greifswald. While preparing the seminar, the lecturer set two main learning objectives.

The first was to lead students to survey and review current social science literature that explores xenophobic attitudes in various countries and in Germany where the module is taught. There were discussions on the historical background and current development of the hotly-debated relations between Muslims and non-Muslims in Germany (Rommelspacher 2004; Fetzer, Soper, 2005; Haug et al. 2009). Even Muslims who immigrated to Germany years or even decades ago are seen as outsiders by German non-Muslims.

The lecturer encouraged students to gain a comprehensive understanding of what has been scientifically done to investigate the relations between Muslims and non-Muslims in Germany. It is assumed that students are informed of the highly contested issues of Muslim vs. non-Muslim relations in Germany in the public debate (e.g., on TV, in newspapers). However, students might not be aware of what social scientists have and can do to study this issue.

The heart of this class project is based on questioning non-Muslim Germans living in areas where people have little or no social contact with Muslim immigrants to see the extent that they exhibit suspicion toward Muslims. Existing survey analyses indicate a higher level of ethnocentrism in the newly-formed states (*neue Länder*) of the former German Democratic Republic (GDR) than in the Federal Republic of Germany, or what used to be called West Germany (Alba et al. 2004).

After the literature review and background study, the lecturer led students to discuss the pros and cons of different research methods to explore “discriminatory tendencies” and asked how they can be applied to evaluate non-Muslims’ attitudes towards Muslims in Germany. In other words, the second objective that the lecturer aspired to achieve was methodological.

Surveys have traditionally been used to investigate attitudes between in-groups and out-groups (McConahay 1982; Kinder, Sanders 1996; Pettigrew 2000; Wasmer, Koch 2003). The most commonly noted concern about surveys is that, at best, they gauge the stated opinions of respondents. However, what people say about their beliefs and actions can be very different from what they actually think or how they behave in day-to-day life.

Moreover, in light of the long-standing emphasis on egalitarian principles in Western societies, respondents might either consciously or unconsciously pay lip service to such principles, which may or may not reflect their inner-most preferences and sensibilities and is known as the principle implementation gap (Kinder, Sanders 1996, p. 92-127 & 291-294; Wasmer, Koch 2003, p. 103).

Experiments thus provide an alternative way to measure discriminatory tendencies. Ideally, experiments would control every variable. In the current case, that would mean that the results (i.e., behaviors induced by the experiment) reflect as closely as possible the genuine level of discriminatory tendencies of non-Muslim German students towards Muslims. In other words, unlike surveys, experiments should not merely measure what respondents self-report, but what their actual beliefs and behaviors are.

As “learning by doing” is the lecturer’s teaching philosophy, the lecturer instructed the students to conduct a small-scale experiment on their own, linking the project to their curiosity of the relationship between Muslims and non-Muslims in their immediate environment, the University of Greifswald. As part of this methodological objective, the lecturer also had to prepare students to undertake primary research, which



they have not learned in previous courses. For the experimental method, students were thus led to discuss all emerging issues, such as possible ethical concerns that might arise when recruiting participants and using forms of deceptions. The class worked together to find appropriate ways to meet these challenges.

In the following section, we present the “ground work” that the class was led to conduct before they embarked on the empirical investigation. That is, a literature review on theories of xenophobic attitudes, a background study of Muslims in Germany, as well as a review of studies that have been employed in experimental methods to investigate discrimination and trust.

### 3 Literature Review

#### 3.1 Theories on Xenophobic Attitudes

At the outset of this course, students analyzed and discussed scientific articles on discrimination and xenophobia in class. The students believed that this would provide an invaluable basis for all subsequent steps of the primary research process.

In general, there are four models for explaining discriminatory attitudes toward immigrants: competition, contact, frustration, and ideology models. Although these models are easily differentiated, they share one essential feature: their theoretical underpinnings are all based on social group theory. We will now explore the basic aspects of this theory before tying together what are in essence four types of social group theory.

Social group theory is most often utilized to elucidate identity formation. This includes not only personal identity but collective identity in regards to regions or nations. Its assumptions are based on a common idea – the identity-alterity nexus (Guillaume 2007; Roberts 2007). According to the concept of alterity, an identity can only be constructed when the self distinguishes between itself and the other: “Who we are is usually framed as a response to some ‘other’ group” (Fligstein 2009, p. 135). Hence, self-awareness, self-images, and identity can only be formed in a fluid process while the contrasting other is permanently reflected. This also holds true for the formation of social identity because “every group needs an outside perspective to be recognized” (Neumann 2007, p. 19). Due to the ongoing process of social interaction, identities can change over time. However, after a given period, collective identities settle and remain stable for the most part. This appears to be true to such an extent that they can almost be regarded as social facts (Risse 2010, 29).

A collective identity can be exclusive or inclusive. Group identities can coexist with one another as multiple identities. Every collective identity establishes an imagined community. This community is based on “the idea that a group of people accept a fundamental and consequential sameness that causes them to feel solidarity among themselves” (Fligstein 2009, 135). This includes a set of rules and norms that define

membership in the group and frame a collective world view.

The psychology of group membership is commonly applied to memberships in “large-scale social categories like nationality, class, sex, race or religion” (Turner 1982, p. 22). A dichotomous distinction is made between the in-group and the out-group. This divide is first and foremost a neutral operation that does not necessarily imply hostility toward the out-group (Brewer 1999). However, in-group-favoritism occurs consistently (Risse 2009, p. 152).

Many types of experiments, such as field and student experiments, have been conducted and have subsequently shaped the theoretical assumptions of social group psychology. By using economic incentives, experiments have shown that participants tend to favor their own group, prefer cooperating with other participants from their own group, and are more likely to be suspicious of members of the perceived out-group (Ruffle, Sosis 2006, p. 147).

The in-group/out-group distinction is often used to explain prejudices against ethnic or religious minorities because in modern nations, they typically form the out-group. Within a nation, a perceived cultural threat to the dominant nationality can amplify prejudices into discriminatory and xenophobic attitudes (McLaren 2002, p. 554). This fear is assumed to threaten either national resources or the dominant cultural way of life (Bobo 1983). Such a perceived threat strengthens the feeling of belonging within the dominant group and increases hostility toward the minority. These notions of social group theory are closely tied to the competition model. In situations of a perceived economic threat, induced perhaps through high unemployment or economic crisis, attitudes toward immigrants become more hostile. It has been argued that this perceived threat is felt more strongly by low-skilled members of the working class than those with higher socioeconomic status, as the former are more likely to compete directly on the labor market against immigrants (Alba et al., 2004).

Alternatively, the contact model argues that the number of contacts people have with immigrants is a crucial indicator of discrimination or xenophobia (Allport 1954). In this case, a higher degree of contact is associated with fewer xenophobic attitudes. Conversely, people who do not share a common living environment or any other type of contact with a particular group of immigrants are more likely to develop discriminatory attitudes toward them (Pettigrew, Tropp 2006).

A third model, the frustration model, states that given particular social and economic situations, a certain level of frustration among members of the dominant social group can be expected to lead to a rise in xenophobic attitudes toward minority groups. As a social out-group, this particular minority is blamed for the unfavorable state of the country or the state of social deprivation felt by people in the dominant group. Hence, the minority is



functionally cast in the role of scapegoat for the dominant social group.

Finally, the ideology model is strongly based on the in-group/out-group nexus, whereby the crucial difference between the in-group and the out-group is constructed around their ideologies. The ideology model is often used by populist right-wing politicians who proclaim the general beliefs and values of the in-group, and insist that the out-group are incompatible and that social integration is doomed to fail. The caveat of the ideology model is that it over-emphasizes the differences between the in-group and the out-group, negating the fact that despite their differences, there can still be common characteristics.

### 3.2 Muslims in Germany

There are a variety of immigrant groups in Germany, such as guest workers (*Gastarbeiter*), third-world refugees, and other ethnic Germans (*Aussiedler*). The lecturer had planned to lead the students to focus on attitudes toward Muslim immigrants in their project because the debate in recent years about their integration into German society far outstrips any similar public debate about other immigrant groups, which has been fuelled by populist views such as Sarrazin's (2010).

We should note, however, that it is often unclear to whom the phrase 'Muslim immigrants' applies. For this study, the class decided to utilize a broad definition that includes all immigrants who are avowed members of the Islamic religion, without any reference to the strength of their commitment toward their religion. They may have a Turkish or Arabic background, they may have arrived as guest workers or refugees, and they may be second or third generation immigrants.

According to the German Federal Office for Migration and Refugees (*Bundesamt für Migration und Flüchtlinge*), there are approximately 3.8–4.3 million Muslims in Germany (Haug et al. 2009, p. 11). That makes Islam the third largest religion in the country. The variation in concentration of the Muslim population between the old West German states and the newly formed East German states is dramatic: 98.4 percent of Muslims in Germany reside in the Western states, while only 1.6 percent reside in the newly-formed states of the East.

Muslim integration into German society is analyzed in terms of structural, cultural, and social integration, in addition to a number of other dimensions. There is ample literature on this theme (for example Hein 2012). Most of these findings can be put under the rubric of the contact model. Empirical studies attempt to analyze how strong the contact of Muslim immigrants is to other social groups in light of self-segregation in a so-called 'parallel society', which is perceived as the greatest obstacle to successful integration.

Furthermore, the competition and frustration models have gained wider acceptance by virtue of recent findings that show right-wing attitudes increasing since the start of the recent economic crisis. Right-wing and

nationalist attitudes are most often connected to in-group-favoritism and out-group-hostility. Hence, these findings have given rise to concerns that economic crisis exacerbates xenophobic attitudes toward minorities like Muslim immigrants (Decker, Brähler 2010, p. 95).

However, the most widely supported explanatory model regarding the integration debate is the ideology model. Populist right-wing politicians frequently emphasize and construct differences between Muslim immigrants and the rest of the German population. They stigmatize and generalize Muslims as being religious fundamentalists (Rohe 2011, p. 23). By doing so, they oversimplify the heterogeneity of Muslim immigrants and foster prejudice. Furthermore, superficialities, such as headscarves, are depicted as Muslim symbols with a political dimension representing anti-democratic values (Şeker 2011, p. 16).

As the foregoing demonstrates, there is theoretical and empirical support for all four explanatory models. All point to the fact that discrimination toward Muslim immigrants is likely to occur in Germany. The following sub-section shows how experiments can be used to study these topics.

### 3.3 Experimental Methods in the Study of In-Group/Out-Group Bias

The theoretical session of lectures provided an overview of various experimental methods (e.g., field, laboratory, and natural), their specific designs (e.g., economic games and Solomon four-group designs), and their applications to human behavior in social science disciplines (e.g., behavioral economics, social psychology). The lecturer led the students to design an experiment around the use of dictator games, and referred the students to previous such experiments. For instance, scholars have already used experimentation to study ethnic discrimination in Israel (Fershtman, Gneezy 2001), racial discrimination in South Africa (Burns 2006), and linguistic segmentation in Belgium (Fershtman et al. 2005), but few have used experimentation to explore ethnic discrimination in Germany (Klink, Wagner, 1999). To the best of the lecturer's knowledge, no method of experimentation specifically dedicated to investigating the schism between Muslims and non-Muslims in Germany has been utilized. However, such an approach could be fruitful for exploring these issues. As previously noted, experiments can assist us in isolating the genuine beliefs and behavior of subjects. To a certain degree, this might remedy flaws in surveys that only consist of the voluntary responses of interviewees, which at best gauge the respondents' opinions. Indeed, even during an experiment, participants may not behave according to their inner preferences, but to socially-desirable norms, particularly when they know they are being observed. This concern cannot be completely dispelled. However, while there is no foolproof social science approach to sifting out a respondent's inner and outer reactions, an experimental approach can strengthen the validity of findings. It is in



this manner that the lecturer expects the experimental approach to speak to current survey analyses.

#### 4 Research Question and Hypothesis

After the students finished the literature review, they were led to choose a research question and propose hypotheses. The class decided to have a research question that focuses on student populations: Do non-Muslim students demonstrate discriminatory tendencies toward Muslims in the newly-formed states of East Germany?

It is posited that non-Muslims in East Germany will show discriminatory tendencies toward Muslim immigrants because first of all, as various studies have shown, individuals tend to favor in-group members over out-group ones. This is true even when group affiliation is ‘artificially’ created, or even when the two groups are not in competition (Sherif et al. 1988).<sup>1</sup> Beliefs in Islam and the backgrounds of the migrants initially differentiated Muslims from non-Muslims in Germany. Historically, non-Muslim Germans have tended to perceive Muslims as members of the out-group.

According to contact theory, in areas where there are fewer social contacts with Muslim immigrants, such as in East Germany where the university is located, discrimination exhibited by non-Muslims toward Muslims is expected to be higher.

However, one has to keep in mind that university towns usually attract students from afar and in the case of Greifswald, this includes students who originate from multicultural cities such as Berlin and Hamburg. Hence, the student’s background is crucial to determine whether the contact hypothesis can be applied.

The frustration and competition models also support the hypothesis. As Alba et al. (2004) anticipate that a dire economic situation in the East (compared to the West) could have been cause for a higher level of ethnocentrism in the newly-formed German states, although other demographic variables (e.g., age) cannot be ruled out. Following the competition model, highly educated and socioeconomically well people are less likely to show discriminatory tendencies. In summation, the class posits that non-Muslims will show suspicion toward Muslims and this applies to students, even though students are less likely than other social groups to show discriminatory tendencies.

### 5 Methods and Data

#### 5.1 Solomon Four-Group Design

To explore whether non-Muslims treat Muslims differently than other groups, we used the dictator game. The game involves non-Muslim players who split a fixed amount of money, in our case two euros (10 x 20-cent euro coins), between her- or himself and a fictional Muslim partner who is a ‘passive’ player without any decision-making role. If the amount allotted to the passive player is affected by her or his Muslim immigrant

background, this would be an indication of the presence of discrimination (Fershtman, Gneezy, 2001).

To better capture the effect of discrimination against or in favor of Muslims, we used a Solomon four-group design, consisting of two experimental groups and two control groups. The first experimental group included a pre-test and a post-test of the dictator game (Table 1). In the pre-test, a non-Muslim was asked to decide how much she or he would be willing to donate to a businessman who was in need of capital to set up a firm in Hamburg.

Table 1: The Solomon four-group experiment

EG-1	Random assignment →	Pre-test →	Receive experimental treatment: briefing →	Post-test
CG-1	Random assignment →	Pre-test →		Post-test
EG-2	Random assignment →		Receive experimental treatment: briefing →	Post-test
CG-2	Random assignment →			Post-test

Source: Adopted from Carlson and Hyde (2003, 284)

After the pre-test, the non-Muslim player received an experimental treatment: a fact sheet with details about the entrepreneur and his business plan. In this fact sheet, the entrepreneur is characterized by an obviously Arabic name (i.e., Kamran Althani), a picture of an Arabic businessman, and the fact that he holds a degree in industrial engineering. In addition, the planned firm was described as an import-export company marketing fair-trade coffee products.

After the briefing (i.e., treatment), the non-Muslim player is invited to the post-test game. The same procedure that occurred in the pre-test game is repeated. The player decides how much she or he is willing to offer the passive player. The suggested monetary split is then carried out. Up to now, the entire procedure constitutes experimental group 1. Next is the first control group, conducted in the same manner as the experimental group 1, except that the active player receives no data on the passive player (i.e., no experimental treatment) (Table 1).

Both groups constitute a classic experimental design in which both the experimental and the control groups are pre-tested. The weakness of the classic design is that the players in the experimental group might be sensitized to the experimental treatments they receive. In other words, if they are not pre-tested, they could pay closer attention to the briefing data. For the purposes of controlling this interactive effect between the pre-test and the experimental treatment, the lecturer suggested to the class to use a Solomon four-group design. In essence, the Solomon four-group design adds a second experimental group that also receives the treatment, but is not pre-tested. Accordingly, in this second experimental group, there is no interaction between the pre-test and the experimental treatment. Finally, a second



control group is added that is neither pre-tested nor treated. This group is only post-tested to take account of the potential interactive effect between the control group pre-test and the control group post-test (Table 1). Overall, the Solomon four-group design adds two additional groups to boost the internal validity of the experiment.

It can be assumed that if the participant has a tendency to discriminate against Muslims, she or he would dispense less money in the post-test than the pre-test. The treatment in the experimental groups should result in a larger difference between pre- and post-test donations compared to the control group. Lastly, the average amount invested in the post-test game of the second experimental group should be less than that invested in the related control group.

## 5.2 Operation

The experiment was held at the University of Greifswald. Greifswald is located in the East German state of Mecklenburg-West Pomerania (*Mecklenburg Vorpommern*), the population of which is only 0.1 percent Muslim (Haug et al. 2009, p. 107). The possibility of playing the game with people on the street had been discussed, but was considered too time-consuming, labor- and cost-intensive, and unlikely to result in a representative sample. Hence, the class chose to play the dictator games with students at the University of Greifswald. The lecturer proposed a possible experimental design based on a dictator game set in a Solomon four-group design. The students were convinced by its clear advantage – the possibility to test the internal validity – and in a second step, were then encouraged to further plan, conduct and evaluate the experiment as a group effort. Each student contributed to different parts of the project such as the stimulus and questionnaire design or analysis, while all students participated in the data collection and analysis. The convenience sample of this study represents a relatively homogeneous group with certain characteristics (e.g., highly educated and skilled laborer), and the students hoped that they could draw inferences from their specific sample population (Kam et al. 2007, p. 420).

We recruited participants using the University's e-mail system which allowed us to send an invitation to all students of the University. In addition, we advertised the project by talking to students, for example, on their way to the canteen. We decided to apply only a very light form of deception of our research interest by advertising that a postgraduate course wants to undertake a political science study and searches for participants. We offered participants an incentive that they could win one of three Amazon vouchers to the value of 20 euros. A group of students designed the recruitment letter that informed the participants about the context, aim, and duration of the study. Each participant's informed consent was ensured prior to the experiment.

In this process, students perceived the design of the stimulus as the largest challenge. They debated intensively about the information they wanted to share with the participants, and opted for information about the company and gave the entrepreneur a specific high-skilled background to avoid typical stereotypes about low-skilled immigrants. Hence, they tried to measure latent discriminatory attitudes towards Muslims.

Due to financial and time limitations, a pilot study was not feasible. However, students undertook a small test run with a limited number of participants prior to the experiment in order to evaluate whether the experimental design needed adjustment (e.g., whether the participants understood the instructions). This pre-experimental training was vital for students to learn how to behave coherently during the experiment, and helped to minimize any 'interviewer effect' in the actual experiment. After the experiment, participants were asked to fill out a questionnaire that gauged their backgrounds. In the end, the students were able to gather a dataset that included a total of 151 participants.

The dataset contains information about the amount of money donated in the pre- and post-tests, as well as data about gender, age, education, residence, religion, and the participants' views on fair-trade and their preference for coffee to control for the use of a fictitious coffee company. Overall, the dataset contains 17 variables. A group of students entered the data into Statistical Product and Service Solutions (SPSS), double-checked their entries, created a codebook, and distributed the dataset and codebook to the other students. Afterwards, students worked together to run an analysis and practice interpreting the results. In the end, each submitted an individual research report.

## 5.3 Debates about Limitations of the Experimental Design

In this module, students were also led to debate over the potential limits of their research design, sampling, and method. Sampling was particularly contested among the students. In the end, students agreed that conducting an experiment with students at a university in East Germany can be understood as 'theoretical sampling'. This implies that this social group is least likely to show discriminatory attitudes toward Muslims. Among all the federal states, the absolute number of foreigners who live in Mecklenburg-West Pomerania is the smallest by far, with 30,068 in 2010 according to the Federal Statistical Office (*Bundesamt für Statistik*) (2013a). Data on the number of people with immigrant backgrounds is only given as an aggregate for the newly-formed states (*neue Länder*) of the former GDR, which is dramatically lower than the number of foreigners and citizens with immigration backgrounds in the 'old states' (Federal Statistical Office 2013b).

Hence, contact with Muslim immigrants might be limited in a city like Greifswald, but students at the University of Greifswald have diverse origins from across



Germany (see Table 2). This means that the contact hypothesis does not necessarily apply to them. Moreover, it is logical that students with relatively higher levels of education would be the least likely societal group to develop discriminatory attitudes. If a lack of trust toward Muslim immigrants is found among students in East Germany, then it is very likely that we will find even higher levels of suspicion in other East German social groups.

Numerous studies have been based on student samples within the social sciences, especially those based on psychological research (King et al. 1994, p. 125; Henrich 2010). Their predominant goal is to establish internal validity; therefore, external validity is only of secondary concern to them. However, student convenience samples can pose a threat to the internal validity because students have very different characteristics than the average person (Hooghe et al. 2010, 85). For instance, experiments in international relations showed in comparison to military elites, students apply different decision making strategies (Mintz et al. 2006, 765). Therefore, concerns about the internal validity are addressed prior to the limited external validity, which is often regarded as the weakness of experiments (McDermott 2002, p. 334).

Because student samples are highly contested, the research question and objective are crucial for determining whether students are an appropriate sampling base (Kam et al. 2007, p. 416). According to Kam et al. (2007), three cases exist in which student samples are appropriate: first, students are the underlying population; second, no reason indicates that students differ from non-students regarding the subject matter; and third, student samples can provide a critical test for the research hypothesis (Kam et al. 2007, 420-421). The latter reason is the one on which we build the case for students as a ‘theoretical sample’.

Besides theoretical implications, a student sample offers another advantage over other convenient sample populations – it facilitates experimental realism (Druckman, Kam 2011, p. 51). In contrast to mundane realism, experimental realism is necessary to generate a situation in which participants show their true intentions because they act without concerns of social desirability. This is particularly relevant for economic games such as our dictator game in which monetary transfers are made. For students, experimental realism can be generated by offering significantly lower amounts of money compared to other social groups (Druckman, Kam 2011, p. 51; Guala 2005, 33-34; Friedman, Sunder 1994, p. 39-40). Hence, the students decided to apply the idea of theoretical sampling to our study.

It is also worth noting that the class was constrained by lack of finances. Thus, it was only possible to use a convenience sample. Discussing the issues around a suitable sampling frame, students learned that drawbacks are inherent in every research method, and even “experiments are not a panacea for all

methodological concerns” (McDermott 2002, p. 340). Therefore, students were advised to carefully reflect possible threats to internal and external validity, when designing an experiment.<sup>2</sup> One way to achieve a higher level of external validity could be obtained by cross-validations had we the resources. We will mention this point again at the end of this lesson report.

The class spent a significant amount of time debating the inferences that could be obtained from our student sample and analyzing feasible alternatives, such as a convenience sample with the inhabitants of the city, Greifswald, while bearing the impact on other biases in mind. Playing the game on the street could also introduce a selection bias, because the working population might be less likely to be found on the streets during the day. Hence, it is extremely difficult to obtain a sample which is representative for the whole population when faced with limited resources. However, it remains interesting to lead students to explore how residents in a city of few Muslims would react to and treat a Muslim in the experiment, particularly in comparison to a student sample as we theorized the possibility of a heterogeneous treatment effect. The outcome could be very different from the behavior of students, as we suspected a higher impact of the contact and frustration hypotheses. Hence, our findings are in a sense likely to underestimate the impact of discriminatory tendencies that would occur in the general population. Nevertheless, non-responsive-rates can be high when recruiting non-student participants for experimental studies.

After considering and debating the aforementioned issues, the students decided that they believed in the value of a student sample and opted unanimously to proceed to use the student sample to test their hypotheses (Kam et al. 2007, p. 420; Flyvbjerg 2006, p. 230).

Table 2: Greifswald student population in Summer 2010, when the experiment was conducted

Categories	Numbers	Percentages
German students from new states	7129	61.14
German students from old states	2871	24.62
German students from Berlin	1091	9.36
Foreign students	569	4.88
Total number	11660	100

Source: [www.uni-greifswald.de/informieren/zahlen/studierende.html](http://www.uni-greifswald.de/informieren/zahlen/studierende.html) (accessed 4 November 2013)

## 6 Analysis and Discussion

### 6.1 Descriptive Analysis of the Participants

Eighty-two participants (54.3 percent) were female, whereas 69 participants (45.7 percent) were male. The vast majority (140 participants, or 92.7 percent) reported Greifswald as their current residence. About 143 participants (94.7 percent) were born in Germany and 145 participants (96 percent) were German citizens, while five (3.3 percent) were foreigners and one (0.7



percent) had dual citizenship. In addition, only 12 participants (7.9 percent) had an immigrant background.

The low percentage of students with immigrant backgrounds reflects first of all, that students with immigrant backgrounds are underrepresented at the University. Second, fewer people with immigrant backgrounds live in the newly-formed German states. Forty three participants (28 percent) reported that they were from West Germany, while 97 (64.2 percent) grew up in East Germany. Moreover, the majority (87 participants, 57.6 percent) had no religious affiliation, followed by Evangelical Christian students which comprised almost one-third (47 participants, 31.1 percent) and eight participants (5.3 percent) who were Catholic. Muslims, Orthodox Christians, and other religious affiliations were very poorly represented, making up only 1.3 to 2 percent of the participants. The high percentage of atheists is typical for this newly-formed German state, and indicates the enduring influence of the communist GDR. A cross tabulation of religion and the German state of origin suggests that all atheist students are from the *neue Länder*.

Most of the students were unfamiliar with taking part in empirical studies, with 135 participants responding that they had never participated in such a procedure (89.4 percent). Therefore, most participants were less likely to strategically contaminate our experimental result.

Furthermore, a number of descriptive statistics were assessed to account for the design of the treatment. About one-fifth (29 participants, 19 percent) opposed fair-trade, 6 participants (4 percent) had no opinion on fair-trade; while the vast majority favored fair-trade (116 participants, 77 percent). In addition, 53 participants (35.1 percent) disliked coffee, whereas 98 participants (64.9 percent) liked coffee. We will discuss whether these variables affected the outcome of our experiment in the next two sub-sections.

## 6.2 Experimental Outcome

We expected that the average post-test values across the experimental groups would be lower than the average post-test values across the control groups. The results contradict this expectation (Table 3) and indicate an opposite effect with mean post-test values of €1.06 and €0.98 for the experimental groups and only €0.74 and €0.85 for the control groups. After receiving the treatment, the average donation increased by approximately 30 cents to €1. This implies that our treatment – the passive player’s Muslim immigrant background – had a positive effect on post-test values. As posited, no difference between the pre- and post-test values was observed in control group I, which ensures internal validity of the experiment.

Due to these unexpected findings, we discussed methodological shortcomings in class and the students were encouraged to undertake further statistical analysis individually in order to investigate these counterintuitive

findings. Students undertook one-way analysis of variance (ANOVA) and regression analysis, which found the difference between the experimental and control groups to be statistically significant (Table 4). Students who received prior statistical training presented the results to their fellow classmates and explained their interpretation.

Table 3: Descriptive pre- and post-test values

Items	Groups	N	Mean	S.D.
EG-1	Pre-test	41	0.72	0.49
	Post-test	41	1.06	0.52
	Difference	41	0.33	0.48
CG-1	Pre-test	38	0.77	0.56
	Post-test	38	0.74	0.55
	Difference	38	0.00	0.16
EG-2	Post-test	39	0.98	0.57
CG-2	Post-test	33	0.85	0.63

Table 4: Regression Analysis of difference between pre- and post-test

Variables	Coefficient
Treatment	0.324** (0.083)
Age	-0.008 (0.0145)
Gender	0.066 (0.087)
Fair-Trade	0.050 (0.044)
Constant	15.425 (28.754)
Adj. R <sup>2</sup>	0.158
F	4.66
N	79

Note: Standard error in parentheses, \*\*p<0.01

In addition, students tried to explain the unexpected outcome by accounting for treatment groups and participants’ characteristics such as age, gender, and attitudes towards fair-trade (Table 4). Recalling the previous sub-section, there was no stark variation among participants in terms of age, nationality, current residence, or place of origin. As a result, these variables had no significant impact on the difference between pre- and post-test values. Because these variables showed an insignificant impact and the treatment assignment was the only significant factor, the students had lively debates about the theoretical assumptions, stimuli design, and questionnaire design as possible pitfalls.

The result rejects the hypothesis, but is in line with the theoretical sampling of the study: discriminatory attitudes were not detected among students in East Germany. As mentioned earlier, discriminatory attitudes





are least likely among our sample group. Hence, detecting discrimination would have been cause for great concern, whereas our finding confirms the assumption that students are less likely to discriminate against Muslims. This outcome also offers the positive prospect that students are unlikely to be negatively influenced by populist views, which were raised throughout Germany's immigration debate. This confirms previous findings and contributes additional evidence that suggests the importance of education as the best way of preventing discriminatory attitudes.

### 6.3 Possible Noises

Due to the opposite outcome of what the students hypothesized, they were strongly engaged in a debate about possible pitfalls and threats to the internal validity that could have biased the results. The following issues were discussed.

The aforementioned descriptive analysis of the participants' attitudes toward coffee and fair trade shows that players lean more toward favoring them. Even though the regression analysis indicated that attitudes towards fair-trade had no direct impact on the outcome, one can speculate that detailed information (i.e., the treatment) increases the general tendency to give more money to the businessman.

Future experiments should have a control group in which the same information is presented, but without the photo and name of the entrepreneur. By doing so, participants will be more likely to imagine a similar entrepreneur but who belongs to the dominant social group. In addition, a third set of treatment and control groups could be introduced to present a different type of businessman and apply a typical cliché of the low-skilled entrepreneur. Moreover, a fourth possibility is to give only the names of the entrepreneurs and leave out any additional information about the business. Hence, those additional experimental and control groups are highly suitable to narrow down the causal link.

Moreover, it is worth noting that in the 79 pre-tests, the majority (23 participants, 29 percent) chose to split the two euros equally. In the 151 post-tests, the majority (44 participants, 29 percent) also chose one euro for her- or himself and one euro as a donation to the businessman in Hamburg. This result could be a product of the Hawthorne effect: knowing they were being observed, the participants opted to give equal amounts of money to demonstrate fairness. The concern for the principal implementation gap is not only evident in self-reported surveys but also evident in experimental analysis. It may have been preferable for the final answer in the post-test (i.e., the amount of money the participant wishes to donate) to be given during the self-administered questionnaire in a sealed envelope to reduce the interviewer effect (Bryman 2008, p. 218), rather than having participants openly express their donation amounts, as was done in the current case.

## 7 Conclusion: What We Have Learned from This Class Project

### 7.1 Academic Lesson

We expected students to exhibit more suspicion of Muslim immigrants, but found that they appear to exhibit no discriminatory behaviors toward Muslims. By and large, they act favorably or at least fairly toward Muslims. Hence, the findings rejected our stated research hypothesis and our theoretical assumptions about the student sample. Although the generalizability of the results is limited, students might, indeed, be less likely to show discriminatory tendencies. This leads us to further assume that the magnitude of discriminatory tendencies varies among social groups in Germany and is not distributed equally throughout the whole population.

Further investigation and experimentation into German attitudes toward Muslims is strongly recommended. The question of what constitutes a better method for investigations remains an intriguing one. As we noted, surveys, particularly when people are directly asked for their opinions, are prone to bias, as the issue of social desirability enters into the equation. Furthermore, they can only be used to establish correlations – not causality. In order to establish a strong causal link, there is great merit in adding the element of experimentation, as we suggest has been demonstrated here. While the internal validity of this type of method may be high, greater costs and a lack of access to specific social groups to achieve a representative sample often make experiments difficult to introduce.

Our investigation suggests that future survey research studies into in-group/out-group bias would greatly benefit from incorporating an experimental element. With the advent of the Internet and improved online surveying, there has been growing interest in survey experiments as part of research design (Gaines et al. 2007; Mutz 2011; Sniderman 2011). The design of survey experiments consists mainly of a survey, with an experimental treatment (e.g., the biographical sketch of the businessman we used) added to the mix. These surveys can be easily conducted online and combine the advantages of both research designs, which is establishing high internal as well as external validity. This technique is being increasingly used in the fields of political science and sociology, and has even been applied to the study of attitudes surrounding the issue of immigration in the United States (USA) (Hainmueller, Hiscox 2010). Thus, such online survey experiments are recommended for future investigations into discriminatory behaviors toward Muslim immigrants in Germany, particularly because they can easily be conducted as part of a postgraduate course as described by Kam (2013). Due to budget constraints, such survey experiments can be undertaken with student convenience samples using university email systems as a recruiting tool, and software such as Qualtrics, Survey Monkey and LimeSurvey can be used as free demonstration copy in an experiment with a smaller



scope (Kam 2013, 9). To achieve a convenience sample that is not solely based on students, Amazon's Mechanical Turk has been used in postgraduate courses and recent studies (Kam 2013, 9; Berinsky et al. 2012). However, its application is limited to the USA and requires financial resources.<sup>3</sup>

Another recent development to achieve a wider convenience sample is the use of Facebook to advertise a study (Samuels, Zucco, 2013). This approach can be a relatively affordable means to recruit participants with various backgrounds and allows stratifying the sample (Samuels, Zucco, 2013, p. 12). Furthermore, free software (z-Tree) has been developed to conduct computer-assisted economic experiments more easily (Fischbacher 2007). Hence, technological developments will continue to facilitate the use of experiments in social sciences; therefore, students need methodological training in experimental research to adequately employ these tools.

## 7.2 Pedagogical Lesson

The lecturer assessed whether the two learning objectives were met primarily by the research papers that each student submitted at the end of the module. The lecturer was delighted to find that each student presented a well-structured scientific report. They recounted in detail what they had learned in the literature review, what they did in the experiment to collect the data, and further, offered statistical analysis of the data and commented on their findings. Each student also reflected on the limits of the project and indicated room for improvement. Due to the hands-on approach and active involvement, the students were empowered to take responsibility for the project and conducted the experiment with a high level of motivation. Moreover, they were encouraged to collaborate in the publication of the results, which is increasingly relevant for postgraduate students who aspire to a career in academia.

It should also be mentioned that the lecturer had considered the students' prior experience of this subject when designing the module. From the process of designing the experiment to actually carrying it out, the lecturer observed that students were highly engaged in their project which showed that they had a sound perception of their learning situation. Encouraging the students to submit a fully-developed research paper also allowed the students to reconstruct and recount their learning experiences. Overall, the lecturer believed that the two main learning objectives were met.

Given the limited time and financial resources of this class, the learning experience for students was comprehensive. Doing their own project improved the students' ability to understand and to analyze other scientific articles, methods, and research projects. Students believe that they learned a great deal about experimental methods in this module. Furthermore, the project improved their knowledge of the relationships

between Muslim and non-Muslims in Germany and how they can answer questions in an empirical scientific manner. Involving students in all stages of a research project also increases their engagement and motivation. Because students had to consider and conquer each step from the conceptual design, data collection to the analysis in collaboration with their classmates, they were exposed to a wide range of possible pitfalls. Hence, this research experience has well-equipped the students for any kind of primary data analysis, which could include a thesis project or even a career as empirical social scientists.

As for areas for improvement, the students and the lecturer agree that it might be better to have two modules in the future. The first would focus on teaching the theoretical underpinnings of the project, thus paving the way for a subsequent research seminar that would focus on planning and running the experiment. This would give students more time to learn and develop. In addition, this could enable the class to conduct a second experiment as cross-validation with students from another university or a different convenience sample that is not based on students.

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#### **Endnotes:**

<sup>1</sup> We are aware that some recent studies have presented counter-evidence to in-group favoritism. For instance, Güth et al. (2005) found no significant signs of in-group favoritism in their German subjects. Yet, there are quantitatively more findings in support of the in-group favoritism theory.

<sup>2</sup> Various possible threats to internal validity and external validity as mentioned in academic textbooks (see Bryman 2008, 38-39) were considered. However, due to the space limitations of this lesson report, we do not elaborate further.

<sup>3</sup> Therefore, we do not recommend it for universities which cannot offer financial grants to students. In the above mentioned case, each student received a research fund of \$220 to collect data using Mturk at Vanderbilt University (Kam 2013, 9).

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