



Kennst Du die ganze Geschichte?

# Project Report **Culture**

Polarization may have severe consequences on communities and individuals. To counteract negative consequences of group polarization, we aim to promote reflective opinion-forming, and the adoption of multiple perspectives. In this regard, we define multi-perspective thinking as the consideration of a variety of possible reasons, arguments, and perspectives, including those of an out-group, for instance, when evaluating a social situation or a person.

As we aim for a replicable, sustainable solution concept, we wanted to work with accessible, simple, and budget-friendly means in our solution approach. That is why we chose to work with posters.

Preface by the Supervisors .....	40
Journalistic part .....	42
Scientific part .....	44
Self-reflection .....	54
Process description .....	56

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## Preface by the Supervisor

Prof. Dr. rer. nat. Martin Werner



I have been glad to support a team of young students on their endeavor trying to influence the way that the wider public is receiving stereotypical communication in public space. Unfortunately, we have been working our way through the Corona lockdowns and, therefore, had online meetings regularly.

I am very glad of having been one of the supervisors of the team

“Culture”. The experience was very inspiring and I learnt at least as much as the team did. First, of course, about how stereotypes in the public are affecting our perception. It was very nice to see the group coming up with a media campaign in which a strong contrast between the expected emotions induced by a selected image of a person with a textual description of the situation of the person was used to raise awareness that what you see is often not a good model of the reality.

At least as much as we learned about our own biases and stereotypical perception, we learned about ourselves and our behavior in teams. Everyone in our team found a way to contribute to the

overall success in a different way. This is the interesting aspect about very diverse teams in which not a single joint understanding is available at first and needs to be created in meetings and by communication. I am convinced that every single team member enjoyed the situation of being in a completely open space and trying out herself inside a team. It was very nice to see how the group of different people with different backgrounds more and more converged into a team in which certain roles were taken and the needed decision processes have emerged.

As your supervisor, I want to express my deepest respect for each and everyone in this team: you did a great job on the following

three aspects: first, the project outcome stands for itself, second, everyone has taken a big step in his personal development, and, third, we all can now feel salvaged from a team which can now continue to grow into friendships. Let us keep in contact and continue our way. ■

# On how to meet Van Gogh and prevent world wars

## **Close your eyes and picture the following situation:**

*It is a dark but starry night and you are outside. A person appears in front of you and stares at you. He is wearing a dirty shirt and run-down pants. His glaze is empty, his face is pale. He is talking to himself. Some mumbles reach your ears, but most strikingly, the scent of alcohol hits your nose. Suddenly he starts screaming.*

What do you do?

Will you run? He may be a psychopath, an alcoholic, a scary homeless guy. He could attack you! Or will you approach him and ask him for an autograph?

You are standing in front of one of the most famous painters of all times: Vincent Van Gogh.

This is what just happened: With the few available physical features, your brain evaluated the person you just saw. It compared the given stimulus with previous experiences you have had. The features of the man in front of you match with those of the scary group of people you frequently encounter at the subway entrance when you come home late at night. After just a few seconds, an opinion about the person was formed.

While being extremely helpful, this feature of our brain can sometimes be also quite misleading. What kept us alive 20,000 years ago might be an obstacle for our social life today. Back then, instantly categorizing people according to “danger” or “opportunity” was crucial for survival. Today, however, our world is more complex. There are not just friends or enemies. There are co-workers, bosses, customers, neighbors, strangers, old friends, close friends, easy-going friends, and so many more.

The depth and variety of people’s lives and experiences have changed as well. During the Stone Age, you may have been able to describe a person in one page. Today, you could write entire

books about people. Possibly even more than one: Just look how we present our different facets so vividly on different platforms: On LinkedIn we show what we have experienced and achieved in work life. On Instagram and Facebook, we present our private attitudes and feelings. On dating platforms we may try, again, to present ourselves in a different light. Our lives are complex, and so are we.

Bearing that in mind, judging and categorizing a person after having read just one page of their book would not really make any sense. But still, we do it. While being useful in certain situations, these evolutionary behaviors may also impact us negatively. On a higher level, when an entire society practices these behaviors, they can lead to exclusion and the formation of mutually hostile groups.

This phenomenon is described by the in-group/out-group concept: People go back to the most fundamental form of socialization, only differentiating between friends and enemies just like their predecessors 20,000 years ago. While strongly identifying with their in-group, individuals disassociate themselves from members of an out-group. As a consequence, interaction and discussion within in-groups comes with a tendency to extremize opinions and to widen the gap between groups. History has shown us: Encouraging this kind of culture inevitably leads to hate, conflict and war.

Worrying about these dynamics, the project “On second sight” was founded. We have the ambition to encourage individuals to read more than one page of a person’s book before judging them. While we do not intend to change people’s individual opinions, we want to open up their opinion-forming process. We want to showcase that a screaming boss can be insecure and vulnerable, a banker can be altruistic, and the silent kid at school may be a genius in her own language. We want people to put things into perspective; we want to make them consider where others come from.

We believe that when we reflect on our own opinion-forming process and try to make it a more inclusive and open approach, we can decrease in-group/out-group behaviors, and, with that, a lot of other negatives: Fewer stereotypes, less discrimination, less polarization. Sounds too good to be true?

There are in fact many obstacles when trying to motivate people to become more reflective and considered. So, when seeing it as a short-term project, this might even be too good to be true. Therefore, we envision two steps in fostering more reflective opinion forming.

First comes awareness –the awareness that sometimes we evaluate others on information that is not sufficient to form a considered opinion.

Second comes active work against these tendencies. We want to encourage people to actively work against and correct this natural tendency. We want us and others to become more open-minded about other people.

An ideal outcome of our project would be that people were persuaded to adopt a natural, unforced, openmindedness when they encounter other people. And that they reflect more before making quick judgments.

Our study concludes that it is possible and necessary to create more awareness about how we form our opinions. However, we found that our posters alone were not able to generate enough impact to change the viewers' patterns of forming opinions. At times, this made us wonder if it is actually possible to change these patterns. After all, they are evolutionary, and they do indeed fulfill a purpose in certain situations. 'We may simply be biologically predisposed to categorize people. It helps us to give structure to all those stimuli we encounter daily. Also, individual experiences and

characters make impossible a wholly objective view on the world. A completely open-minded and absolute perspective on a person is simply impossible.

Nevertheless, we should still work on our tendency to fit people to patterns. It is without a doubt a difficult task, but it is an important one, too. History has shown us time and time again what happens when we oversimplify the world in polarized terms of good and bad. Us against the Romans, us against the British, us against the Germans. This messaging is easy and infectious, but we know now that it does not lead anywhere good. What, however, brings benefit to all of us is collaboration in a complex global society. And collaboration starts with openness. And it starts with you.

Let's start being more open towards other people, let's start reading more than just the first page. And if we are lucky, we may meet the next Van Gogh in the process. ■

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# On second sight – A study on the encouragement of multi-perspective thinking

## Abstract

When we identify as part of a group, we tend to feel more empathy and be more helpful towards its members. On the contrary, we increasingly alienate ourselves from individuals who do not belong to this group, which can aggravate social differences and may ultimately produce negative consequences, such as radicalization. We analyzed the background and causes of group polarization through a review of the social psychological literature on the in-group/out-group phenomenon and extracted possible ways to overcome related detrimental effects. We developed a visual campaign to promote multi-perspective thinking among observers and to counteract the processes of group polarization. We conducted an online survey to test whether our poster campaign can enhance reflection on ambiguous situations and the empathy towards individuals whom these affect. Our quantitative and qualitative analysis of the survey results did not confirm our hypotheses and revealed shortcomings of the visual campaign, which are discussed in the report.

## Background

The in-group/out-group phenomenon is a widely known and researched phenomenon in social psychology. Whereas the *in-group* represents a social group an individual identifies with as a member, the *out-group* is defined by the opposite: it is the social group with which an individual does not identify (Aronson et al., 2014). Identification depends on a number of factors, such as similar attitudes, shared values and ideas (Aronson et al., 2014). It has been shown that individuals feel more empathy towards their in-group, a process which is referred to as the intergroup empathy bias (e.g., Cikara et al., 2014; Xu et al., 2009). This has further been related to the empathy-altruism hypothesis, which states that, the more empathy we feel towards a person, the more we will attempt to help them for altruistic reasons (Batson et al., 1988). Conversely, individuals have a tendency to disassociate themselves from members of an out-group (Sidanius & Pratto, 2001). These findings can be interpreted to mean that we feel more empathy towards our in-group and, accordingly, are more helpful towards its members. At the same time, we increasingly disengage socially from members that we associate with our out-group.

These processes can lead to *group polarization*, which describes the tendency of taking the interaction and discussion within in-groups to extreme levels. As a consequence, this can widen the social gap between groups (Abrams et al., 1990; Woodward, 1995). Further, group polarization is reinforced by the fact that individuals begin to compare themselves to others when identification with their in-group becomes salient. Hence, categorizations that differentiate between in-group and out-group are used which, in turn, exacerbate the social gap (as discussed in: Yardi & Boyd, 2010).

The identification with individuals or social groups similar to us is also rooted in the fact that it provides social and emotional support (Hurlbert et al., 2000). Nevertheless, these mechanisms can equally engender negative consequences, such as radicalization and hatred against out-groups, among others (Sunstein, 1999).

## Motivation & Goal

In order to counteract these negative consequences of group polarization, our motivation was to promote the adoption of multiple perspectives based on reflective opinion-forming. Stemming from the concept of polarization and the possibly severe consequences on communities and individuals, we were interested in promoting what we call *multi-perspective thinking*. In this regard, we define multi-perspective thinking as the consideration of a variety of possible reasons, arguments, and perspectives, including those of an out-group, for instance, when evaluating a social situation or a person. We aimed to counteract the proverbial *judging a book from its cover* and to motivate people to consider several points of view prior to forming an opinion about other people, as we believe it is important to consider multiple perspectives before judging a person or a circumstance.

We targeted our goal by developing a visual campaign as an approach to promoting multi-perspective thinking among observers. It has been shown that online platforms, which primarily promote exposure to the in-group, create an environment that encourages the adoption of antagonistic strategies and prejudice towards out-groups (Santos et al., 2021a). In the context of reversing these

mechanisms in social media, Santos et al. (2021b) found that affiliations with out-group members led to opinion convergence and prevented group polarization and further disagreement. They argue that exposure to out-group opinions and contacts can moderate opinions and thus reduce group polarization. We transferred these findings to a less dynamic and primarily analog format, posters in the context of a visual campaign. We assumed that presenting ambiguous situations and providing multiple possible explanations for these concurrently may elicit similar results to those found by Santos et al. (2021b). We, thus, wanted to test whether a carefully designed visual poster campaign, which is aimed at encouraging people to consider multiple opinions and explanations (i.e., including out-group opinions) in the context of judging other individuals, can promote multi-perspective thinking. Hence, our research question was the following: *Can a visual campaign encourage people to consider different perspectives when forming an opinion about another person?*

In sum, it has been shown that the exposure to ideas of out-groups can counteract mechanisms and negative consequences of group polarization (Santos et al., 2021b). Our visual campaign was grounded in these findings and targeted the consideration of different perspectives when forming an opinion about another person. We, thus, hypothesized that:

**Hypothesis 1.** After seeing the poster, participants will find a higher number of possible explanations for the example situation.

**Hypothesis 2.** After seeing the poster, participants will be less certain about the explanations for the example situation.

**Hypothesis 3.** After seeing the poster, participants will feel more empathy towards the person in the example situation.

## Methods

### Visual campaign

To answer our research question, we first designed four posters as part of our visual campaign. These posters featured various fictional characters and described a specific behavior of each of these characters. We intended to portray every-day behaviors or situations, which offer several possible explanations, and could, hence, lead to premature judgments of the characters depicted. To counteract this and to motivate the adoption of multiple perspectives based on reflected opinion-forming, each poster also addressed the backgrounds of these characters and gave explanations for their behavior. Figure 1 shows the posters of our campaign.



The four posters of the visual campaign



## Participants

In total, 143 participants filled out the survey. From the original sample, we excluded  $n = 71$  participants. Of those participants, 64 were excluded because they did not complete some or all of the questions relevant to the analysis, either before or after exposure to the poster. Once this quality assurance filtering was finished the control and experimental group differed in size, such that seven participants were removed from the experimental group to ensure equal group sizes of both groups.

Among the participants whose answers we were able to use, the mean age was 37.09 years ( $SD = 15.06$ , range: 20-99 years). Of those 22 were women, 57 were men and the rest did not specify. 25 were students, 37 employees, 14 were freelancers/entrepreneurs, 2 were pensioners and 1 was unemployed, the rest did not specify. The survey was entirely in German and distributed to a German-speaking audience. The origins of the participants were not researched any further.

## Online survey

The online survey was set up on the survey platform *soscisurvey*. The procedure can be divided into a pre-questionnaire (pre-exposition; Time point 1 (T1)), exposure, and a post-questionnaire (post-exposition; Time point 2 (T2)). Participants were split into two groups: the first group (experimental group) saw one of the four posters from our visual campaign during the exposure. The second group (control group) saw the plain portraits, but without any text, i.e., explanations about the situation and the character, during the exposure. This enabled us to compare the participants' responses before and after they had seen the actual poster or control portrait respectively.

At T1, participants were presented with an example situation ("Imagine you work in a medium-sized company. You know from the human resources department that you have a new colleague starting today. You meet him in the hallway and greet him in a friendly manner. He walks past you with his coffee cup without reacting.") and subsequently were asked to respond to several questions re-

garding this example situation. To measure how many possible explanations participants found for this situation we asked "What do you think led to this situation/behavior?" (open answer format). The number of responses, but not their content, was considered for the following analyses. In order to analyze this aspect in more detail, we also asked about participants' certainty in relation to this answer ("How certain are you with this assessment?" from 0 = *not at all certain* to 100 = *very certain*) and we asked "Who is to blame for the situation?" (open answer format). We then presented another example situation based on the previous one ("As soon as he passes you, you hear him swearing softly. He spilled his coffee on the floor."), and in relation to this, we measured the empathy participants felt towards the person in the example situation. We followed Cikara et al. (2014) and asked "How bad does this make you feel?" and "How good does this make you feel?" on a continuum from 0 = *not at all* to 100 = *very*. This block was repeated at T2 to measure whether there were any differences in the answer before and after the exposition.

In the following, for a more detailed evaluation of the data, participants' demographics as well as their personality and empathy traits, i.e., stable characteristics of a person, were measured. We assessed personality using the 10-Item Big Five Inventory (BFI-10) (Rammstedt, 2007) and measured trait empathy utilizing the Basic Empathy Scale in Adults (BES-A) (Carré et al., 2013).

In the last part of the survey, we asked participants questions related to the posters to be able to analyze our visual campaign and its effect on the viewers. The items used were the following: (1) "How much did you like the poster?" (continuum from 0 = *not at all* to 100 = *very much*), (2) "Would you change anything about the poster?" (Likert scale from 0 = *would change nothing* to 5 = *would change fundamentally*), (3) "What would you change about the poster?" (open question), (4) "Do you think the poster helped you to evaluate the example situations differently/newly?" (continuum from 0 = *not at all* to 100 = *very much*), (5) "Do you think you would notice the poster in everyday situations in public places (like on your way to work)?" (continuum from 0 = *not at all* to 100 = *very much*).

## Data Analysis

The following describes the statistical methods used to evaluate the collected data, both quantitatively and qualitatively.

### Quantitative Analysis

Statistical analyses were performed using R-Studio. First, participants were excluded as described in section "Participants." The analyses were preceded by descriptive analysis of the sample characteristics and study variables, which are represented in Table 1 and Table 2.

Variable	Experimental group		Control group		Full sample	
	M	SD	M	SD	M	SD
Number of explanations (T1)	2.13	1.09	2.38	1.22	2.09	1.26
Number of explanations (T2)	1.82	1.04	2.20	1.31	2.00	1.18
Confidence (T1)	70.08	25.28	69.75	28.10	69.37	27.23
Confidence (T2)	70.30	24.34	69.32	30.42	69.84	27.24
Empathy towards person (T1)	-4.95	39.78	-12.89	37.11	-8.86	38.54
Empathy towards person (T2)	-7.83	43.79	-15.33	36.76	-11.31	40.67

Table 1: Descriptive Statistics for Study Variables

### Data management

We measured empathy as an outcome variable, i.e., the answers to the questions "How bad does this make you feel?" and "How good does this make you feel?", and empathy as a personality trait (using the BES-A). We summarized the empathy outcome variable by multiplying the responses to the item "How bad does this make you feel?" by -1 and then adding both items to obtain a combined score (from -100 to +100). Regarding empathy as a trait, we computed the average of all items of the BES-A scale, which

are each measured on a Likert-scale. Some of the questions are negated, their answers therefore needed to be inverted. We further measured the Big5 empathy traits, but only used Openness in the analysis, which was similarly normalized from the two questions measuring it on a Likert-scale. Boolean variables were created to indicate the belonging to the control or experimental group, and to account for which poster was shown.

The free text answers in the survey referring to the explanation of the situation and the culprit(s) were manually parsed, since the automatic counting of explanations did not include every case. The problems encountered were either technical (the participant separated items with a comma instead of a new line) or, more often, language such as "both" referring to two culprits, "I don't know"/"none" referring to zero culprits, "all reasons before, and further [...]", where the simple counting of words is not enough to determine the number of explanations and culprits the participant referred to.

### Hypothesis-driven analyses

*Analysis 1.* We conducted a 2 x 2 repeated measures analysis of covariance (RM ANCOVA) to investigate whether participants found more possible explanations for a person's situation after seeing our poster (Hypothesis 1). Thus, the within-subjects factor Time Point (two levels: pre exposition/T1, post exposition/T2), the between-subjects factor Group (two levels: experimental group, control group) were included. The covariates included to control for confounds were gender as a between-subjects factor (two levels: female, male) and age because we only delimited the age of our participants to a small extent. We also included the liking of the posters, empathy (trait) and openness as covariates. The dependent variable was the number of explanations participants gave for the example situation.

*Analysis 2.* To test our second hypothesis, namely that after seeing our poster, participants will be less certain about the explanations they gave, we repeated analysis 1, but with a different dependent variable. We computed the RM ANCOVA with the certainty ratings as the dependent variable.

*Analysis 3.* To examine whether participants felt more empathetic towards the main character in the example situation after seeing our poster, we repeated analysis 1 with the dependent variable empathy (outcome).

#### *Exploratory analyses*

Since we did not find an interaction between Group and Time Point, we computed four new boolean variables to differentiate which of the 4 posters participants had seen (i.e., one boolean variable for each poster). We repeated all three analyses and included the four new variables as between-subjects factors to the analysis.

#### **Qualitative Analysis**

For the qualitative analysis, we examined the responses of participants from both groups to the open-ended survey questions (“*What do you think led to this situation?*” (Question 1) and “*Who is to blame for the situation?*” (Question 2)). We analyzed their responses for both questions separately. In the first step, we screened the answers in both groups for each question. One participant can give multiple answers, each of those counting separately. Based on the given answers, we defined different categories to which responses with similar content were assigned. Responses that are not clearly identifiable as such or are not clearly assignable to any of the established categories are counted under “not allocated.” The second step was to count the number of responses affiliated with each category. This was done separately for the answers to both questions during the pre-questionnaire and the answers during the post-questionnaire.

The designation of the categories is chosen from the point of view of the questionnaire participant. In the situation, the participant takes on the role of the employee who is not greeted by his new colleague.

Table 3 provides an overview of the derived categories for Question 1, as well as some example responses to exemplify the assignment.

Category	Example Responses
justified in the colleague	
without bad intent	shy, fearful, introverted, nervous, excited, over strained, insecure, stressed, busy, focused, problems, worries, in though, unobservant
justified in the colleague with bad intent	disinterested, dislike, rude, arrogant, ignorant, bad upbringing, bad mood, bad day
caused by the situation	misunderstanding, language barrier, not noticed
justified in the colleague	disabilities, illness, psychological problems
company determined	bad company culture, bad onboarding process
neutral	nothing special, random
self-determined	my fault

Table 2: Categories with Example Responses to the Question “What do you think led to this situation?”

For Question 2, the derivation of the categories mostly corresponded to the given answers. The categories regarding whom participants assigned the blame to in the example situation were divided as follows: nobody, me, both of us, the colleague, the colleague's bad upbringing, the colleague's emotions, the overall situation, the corporate culture, the society, disability or illness, they do not know.

A similar procedure was chosen to analyze the answers on the question concerning the poster design (“Do you have any other comments about the poster or the experiment?”). Here, the open-ended answers were tagged with keywords depending on their contents. For example, answers like “Stripes on posters are too dominant” and “Stripes are distracting” both were categorized under the feedback tag “less stripes.” To further categorize the feedback tags, they were then summarized into more general feedback buckets. For example, the bucket “Feedback on graphical

design” includes tags like “too colorful,” “too dark,” or “too many design elements.”

## Outcome and Discussion

### Results

#### Quantitative Analysis

##### *Hypothesis-driven analyses*

*Analysis 1.* None of the factors or covariates were significant.

*Analysis 2.* A significant main effect for liking (“How much did you like the poster?”):  $F(1, 135) = 5.040, p = .026$ , partial  $\eta^2 = .04$ , and trait empathy,  $F(1, 135) = 9.853, p = .002$ , partial  $\eta^2 = 0.07$  was found. Certainty was significantly lower the more participants liked the poster they saw ( $SE = 0.098$ ). Certainty was significantly higher the higher participants scored on trait empathy ( $SE = 5.425$ ). None of the other factors or covariates were significant.

*Analysis 3.* We found a main effect for Group ( $F(1, 133) = 7.796, p = .006$ , partial  $\eta^2 = .06$ ), liking ( $F(1, 133) = 13.440, p = .000$ , partial  $\eta^2 = .09$ ), and age ( $F(1, 133) = 4.058, p = .046$ , partial  $\eta^2 = .03$ ). Felt empathy towards the person in the example situation was significantly higher in the experimental group than in the control group ( $SE = 8.479$ ). Felt empathy was significantly lower the more participants liked the poster they saw ( $SE = .131$ ), and it was significantly lower the younger participants were ( $SE = .201$ ).

##### *Exploratory analyses*

We conducted an exploratory analysis, different from our a-priori hypotheses. We postulate that, although no effect for the experimental group is found for any of the three hypotheses, there might be an effect of a specific poster being shown, since the four display a different message. After conducting a further analysis of covariance, no such effect was significant.

#### Qualitative Analysis

The following sections provide an overview of the qualitative analysis of the data collected. This includes, firstly, the participants' responses to open-ended Questions 1 (“What do you think led to this situation?”) and 2 (“Who is to blame for the situation?”) of the survey. Furthermore, the feedback of the participants regarding the poster design is discussed in more detail.

##### *Response to the open-ended survey questions*

The following presents the number of responses affiliated with each derived category for the open-ended survey questions. The distribution of these data in absolute numbers and percentages for the times T1 and T2 and between the experimental group and the control group is shown in Table 4 for Question 1 and Table 5 for Question 2, respectively.

Regarding Question 1, 47% of the responses of the control group at time T1 answered that the new colleague was the culprit in the example situation, without assuming bad intentions on his part. Bad intentions were assumed by 26.8% of the responses. 6 % of the answers referred to a disability or illness as a possible explanation of the new colleague. In the experimental group, 41.9% of the responses did not refer to bad intentions, but 31.6% of the responses suggested negative intentions. An existing disability or illness was mentioned in only 1.5% of the responses. These observations indicate differences between the two groups.

After the exposure (at T2), the percentage of responses that do not indicate bad intention behind the new colleague's behavior is similar for both groups when compared to T1. In contrast, responses citing a bad intention of the new colleague decreased by 15.2% in the experimental group and by 16% in the control group. The largest increase (of 613.3%) was found in the experimental group for the category that includes responses regarding a possible disability or illness of the colleague. In the control group the increase was 30%. The differences in the other categories were in the low single digits.

Category	Experimental group				Control group			
	T1		T2		T1		T2	
	n	%	n	%	n	%	n	%
justified in the person without bad intent	57	41.9	46	41.1	70	47.0	59	45.7
justified in the person with bad intent	43	31.6	30	26.8	40	26.8	29	22.5
justified in the person	2	1.5	12	10.7	9	6.0	10	7.8
caused by the situation	13	9.6	10	8.9	14	9.4	10	7.8
company determined	10	7.4	7	6.3	13	8.7	14	10.9
neutral	4	2.9	3	2.7	0	0	0	0
self-determined	2	1.5	1	0.9	1	0.7	1	0.8
not allocated	5	3.7	3	2.7	2	1.3	6	4.7

Note. Experimental group (T1: n = 136, T2: n = 112). Control group (T1: n = 149, T2: n = 129). The percentages refer to the absolute sum of given answers at the respective time point in the respective group, and not on the number of participants. For example, of all the answers given in the experimental group at T1, 41.9% can be assigned to the category which contains all responses where the observer assumes that there is no bad intent behind the behavior of the new colleague.

Table 3: Frequency of responses to the question “What do you think led to this situation?”

Category	Experimental group				Control group			
	T1		T2		T1		T2	
	n	%	n	%	n	%	n	%
nobody	24	26.7	26	32.9	20	19.4	19	22.9
me	5	5.6	3	3.8	7	6.8	4	4.8
both of us	1	1.1	1	1.3	4	3.9	2	2.4
colleague	32	35.6	24	30.4	35	34.0	27	32.5
colleague's								
bad upbringing	2	2.2	2	2.5	2	1.9	2	2.4
colleague's								
emotions	5	5.6	0	0	2	1.9	2	2.4
overall								
situation	3	3.3	4	5.1	4	3.9	4	4.8
company	12	13.3	9	11.4	19	18.4	15	18.1
society	2	2.2	4	5.1	1	1.0	1	1.2
disability/								
illness	1	1.1	2	2.5	0	0	1	1.2
I do not know	3	3.3	4	5.1	5	4.9	3	3.6
not allocated	0	0	0	0	4	3.9	3	3.6

Note. Experimental group (T1: n = 90, T2: n = 79). Control group (T1: n = 103, T2: n = 83). The percentages refer to the absolute sum of given answers at the respective time point in the respective group, and not on the number of participants.

Table 4: Frequency of responses to the question “Who is to blame for the situation?”

With relation to Question 2, in both groups, the majority of answers referred to the colleague as being at fault, with a majority of 35.6% in the experimental group and 34% in the control group at T1. The second-largest part of the answers saw the blame in nobody (26.7% in the experimental group and 19.4% in the control group). The company was indicated as responsible in 13.3% of the answers in the experimental group and 18.4% of the answers in the control group.

At T2, the number of responses that saw no one to blame increased by 23.2% in the experimental group and 18% in the control group. The amount of responses that saw the blame on the new colleague decreased by 14.6% in the experimental group and by 4.4% in the control group. The remaining changes were marginal.

#### *Feedback regarding the poster design*

Participants were asked for feedback on the posters (“What would you change about the poster and why?”). The following results only include feedback from the experimental group as they saw the actual posters.

31% of participants stated that they suggest minor changes to the poster, while 9% asked for a fundamentally new poster design. 26% of participants preferred almost (17%) or totally (9%) the current poster design. 20% of participants were indecisive and another 13% did not provide answers to this question.

Looking specifically at critical comments, feedback can be categorized as follows:

- 1) Objections to the design of the poster;
- 2) Objections to its functioning mechanism;
- 3) Criticism regarding the understandability of the poster and its message.

Out of these categories, the graphical design of the poster was most frequently mentioned. Participants would like to see a less busy layout with a smaller number of elements. Specifically, they

envision a layout with fewer, or without, stripes. The text was partly perceived as too small or as hard to read. Several participants suggest changing the color scheme to improve readability of the text. The suggestions concerning the colors of the poster were diverse and sometimes contradictory. While some ( $n = 3$ ) participants found the color scheme to be too dark, others ( $n = 2$ ) found the text to be too colorful. Additionally, one participant pointed out that it was hard to read the text because of its placement between the stripes and the positioning of the line breaks.

Next to the graphical design of the poster, some ( $n = 4$ ) participants mentioned that they were unsatisfied with the functioning mechanism of the poster. In particular, they did not like to be influenced (or manipulated) in their opinion by our posters. Furthermore, the emotional aspect of the posters was pointed out by three participants. To them, the concerns in our posters felt artificially created, the emotional aspect was generally not appealing, or an unwanted feeling of guilt arose from it.

Lastly, the understandability of the posters was mentioned as part of the critical feedback. Two participants of the survey would like to see some explanation of the topics presented on the posters. Another participant suggested fostering ease of understanding by simplifying the presented topics, as opposed to just explaining them.

#### **Discussion**

By designing a visual campaign consisting of four posters, we aimed to counteract the negative consequences – namely, radicalization and hatred – of group polarization (Sunstein, 1999). Based on previous findings by Santos et al. (2021b) in the realm of social media, we assumed that our posters would encourage observers to consider multiple opinions and explanations when judging other individuals, and, hence, promote multi-perspective thinking. We designed an online survey on the basis of which we compared answers of participants before seeing our poster and after seeing them.

### **Quantitative Analysis**

Contrary to our three hypotheses, we did not find any differences in the number of explanations, nor in certainty, nor in the empathy participants felt towards the person in the example situation after participants saw our posters (outcome empathy). We refrain from interpreting the effects of our analyses as the effect sizes were small.

### **Quantitative Analysis**

Comparing the responses of both groups to Question 1 at T1, it becomes evident that already at the baseline both groups differed. The control group perceived the new colleague in a better light than the experimental group and saw the reason for the new colleague's behavior as external or unintentional. In contrast, the experimental group showed a more negative attitude towards the new colleague at the beginning (at T1). The assumption that the new colleague acted out of bad intentions decreased in both groups as a result of the exposure. A strong change could be noted with regard to a possible disability or illness, especially in the experimental group. Similar changes from T1 to T2 were observed for Question 2. This could be indicative of the effectiveness of our poster campaign. However, this assumption is not supported by the results of the quantitative analysis. Therefore, no clear conclusions can be drawn regarding the effectiveness of our campaign.

Interestingly, in absolute numbers, there were more responses to Question 1 for both groups at both time points in which the blame was seen to lie with the observer him/herself than in Question 1. We may have found these differences as a consequence of the wording of Questions 1 and 2.

Furthermore, the open-ended questions in the survey showed that 40% of participants had objections to the design of the posters (31% minor and 9% major objections). An unattractive poster design can cause the posters to be less effective when the poster campaign is displayed in public places. An attractive poster layout is more easily noticed and can hold viewers' attention longer. This, in turn, could affect the effectiveness of the poster.

### **Limitations**

This study was subject to limitations, which we will highlight briefly. The control group in the survey was presented with our posters, the only difference was that they saw the posters without text. Consequently, they still saw the poster, including the graphical elements and the photograph in the background. Hence, we cannot say to what extent the experimental condition and the effect of our poster was different in both groups. Alternatively, the control group could have answered the survey without seeing any posters.

Another methodological limitation of our study stems from the example situation. We cannot assume that the new colleague was interpreted as belonging to the out-group because he fictitiously belonged to the same company. Further studies could examine the effectiveness of our posters using other situations that better distinguish between in- and out-group. In addition, participants viewed the posters on a screen. We could not control how large this was and how long participants viewed the posters. Furthermore, in a use case, these posters would not be presented on a screen, but primarily in analog form (e.g., on train platforms, streets, etc.), which limits the external validity of our study.

The limited effectiveness of our posters may be explained by the poster design. As pointed out in section "Feedback regarding the poster design," the layout and design of the poster was not appealing to all participants. With a layout that is perceived as too crowded or a color scheme that is perceived as too dark or too sad, participants may have already had a negative attitude towards the poster before even evaluating its meaning.

Ultimately, we committed errors in the procedure because we did not determine the final sample size a priori. A sample size calculation using G\*Power 3.1 (G\*Power 3.1. (Faul et al., 2007)) a posteriori showed that a sample size of  $N = 210$  would have been necessary to achieve a mean effect size according to Cohen (2009).

### Summary and Future Goals

Aiming to achieve multi-perspective thinking and consequently degrade the negative effects of polarization, we studied the effect of a visual campaign on considering multiple points of view before forming judgements about people. We developed a visual campaign consisting of four posters, the effectiveness of which we tested using an online study. Our results did not show that the posters had an effect on the number of possible explanations participants found for a person's situation or behavior. We further did not find that the exposure to our posters influenced certainty or empathy towards this person.

Future work should especially consider the methodological limitations of our study and test the posters on a larger sample, optimal-

ly in a natural setting that ensures external validity. The feedback regarding the poster's design should be reevaluated and posters should correspondingly be adjusted. This reevaluation is important as unstudied adjustments could engender bias, affecting thus the message meant to be conveyed through the campaign. The second aspect would be restudying the same factors considered above, but with a larger sample. This is essential to examine the effects of design adjustments and uncover potential relationships. Should the campaign prove effective in this instance, it could be launched on TUM's campus and in public areas across Germany to validate it in a representative environment and to eventually achieve the campaign's main goal: promoting multi-perspective thinking. ■

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## Self-reflection

"If you want to go fast, go alone. If you want to go far, go together." And together we went. Right from the outset, a natural sense of connection characterized our team, even when team members had to step back from their commitment to TUMJA due to personal circumstances. Most teams can't do without a clear leader, yet our team thrived despite or maybe because of the absence of such a leader. Without a doubt, this couldn't have been possible without the strong support and valuable guidance by our esteemed supervisors Prof. Dr. Martin Werner and Prof. Dr. Elisa Resconi as well as our dedicated tutors Panagiotis Christou and Samuel Valenzuela.

We knew that the right calibration for the direction of our project at the start of this interdisciplinary adventure would help us in finding a purpose that each of us could support avidly and wholeheartedly. Hence, we collectively decided to take our time to thoroughly incubate, revise and refine our project idea. Beautifully creative brainstorming sessions sparked a diverse set of great ideas, which all shared a common tagline of contributing towards and improving culture through increased empathy. Ideas ranged from overcoming the cultural barriers that hinder debate between political groups through gamified consensus-building in the form of a new type of social network designed to overcome polarization, to panel discussions with everyday people sharing unique insights into their life as a means to gain perspective.

Against the backdrop of increased (perceived) global polarization and its manifestation in unprecedented political events such as the United States Capitol attack, we decided to take action by fostering a culture of stronger mutual understanding, empathy and healthy diversity of opinions.

Frankly speaking, pinning down our idea and accurately framing it for everyone to understand proved to be a bit of a challenge initially. That's only one of the occasions where the immensely valua-

ble guidance by our supervisors and tutors helped us bring things back on track.

The diversity within our team proved especially valuable when it came to taking things to the scientific level, as only some of us were familiar with concepts like in- or out-group bias or homophily to name a few. Through our research, we increasingly came closer to uncovering the underlying challenge at hand that, in turn, helped us brainstorm and refine ideas on how to measure as well as mitigate it.

Again, none of this was a linear process but the result of iterative ideation, which was one of the aspects everyone in our team benefited from and enjoyed a great deal. The free, creative and, most importantly, constructive exchange of ideas proved to be a trademark of our team throughout the whole project. Nevertheless, we had to occasionally take a step back and gain a perspective on our ideas from people outside the team. However, our team rose to the occasion and delivered when we had to, which proves the dedication of everyone involved. Whether it's preparing the visuals or crafting a scientific survey while being pressed for time, we managed to pull it off collectively with every team member carrying their weight after all. This is especially fascinating given that most, if not all, team members either moved to another city or even another country, started a new degree or took a new job in the process. Nevertheless, each team member contributed through their unique and strong skill-set, ranging from analytical thinking, photo and video editing, scientific analysis, linguistic talent, strong communication and effective organization.

In retrospect, we all gladly look back at a journey of growth, connection, learning, newly found friendship, and, above all, fun. We wouldn't have wanted to miss it, and for that we are all immensely grateful. Thank you. ■



# [no name]\*

\* The final decision about the Name will be decided as soon as we have evaluated the results from the first questionnaire.



## PROJECT GOAL

Whereas individuals identify as a member and share values within their in-group, they feel the other way round concerning out-groups<sup>1</sup>. Individuals feel more empathy towards their in-group (intergroup empathy bias)<sup>2</sup> and they have a tendency to disassociate themselves from other members of an out-group<sup>3</sup>. These phenomena lead to the fact that interaction and discussion within those in-groups comes with a tendency to extremize opinions and to widen the gap between groups<sup>4-6</sup>. In order to counteract the negative consequences of these mechanisms – namely, radicalization and hatred against other groups<sup>7</sup> – we want to promote plurality of opinions based on reflected opinion-forming.

**GOAL:** We aim to create a (audio) visual campaign that encourages people to reflect on their opinions and to consider opinions outside their in-group.

## PROJECT STRUCTURE PLAN (PSP) AND TIME SCHEDULE



## RESEARCH QUESTION

Can a campaign motivate people to reflect on their opinions and consider perspectives outside their in-group?

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MAY 2021

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POSTER 1:

We were able to converge on and define our project idea after reflecting on different ideas together as a team. Through research, we found out that polarization was a consequence of strong in-group and out-group thinking. Given the difference in empathy towards people in either one's in-group or out-group, people tend to increasingly disassociate themselves from people in their out-group, which leads to echoing and potentially radicalizing effects with less and less exposure to diverse ideas. Hence, we decided to break through this vicious cycle by conducting a visual campaign that encourages people to reflect on opinions other than their own in order to promote a healthy plurality of opinions and reduce radicalization. Our project structure plan was framed by internally and externally set deadlines, e.g. for drafting visuals or formulating a questionnaire. In addition, intermediate evaluations and the Future Lab represented other major milestones on our journey to research the question of whether a campaign can motivate people to reflect on their opinions and consider perspectives outside their in-group. ■



# On a second sight

## A study on the encouragement of multi-perspective thinking

### WHAT HAPPENED SO FAR?

During our initial literature search, we found that individuals feel less empathy towards people they identify less with (people that belong to a so-called out-group as opposed to an in-group).<sup>2,4,5</sup> This can lead to hatred against these people and widen the social gap between groups.<sup>1,3,4,7</sup> Based on this, we developed two first poster drafts which we believed encouraged observers to consider different perspectives when forming an opinion about another person. We then evaluated these drafts in a qualitative online survey. We took the results of this survey as a guideline to design a second draft which we will evaluate in a second, more elaborate and mainly quantitative survey.

### OUR FIRST RESULTS

We found that the design in which we leveraged text to convey a story was the most remarkable and self-explaining to the participants of our first survey. We also concluded from the results that we should not target a prominent, political figure because of the difficulty to project a neutral political stance. Hence, we decided to focus on a variety of people in the German society whose cultural and religious background or work circumstances often lead to hasty judgments.

### RESEARCH QUESTION

*Can a poster campaign encourage people to consider different perspectives when forming an opinion about another person?*



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## POSTER 2:

“In what way can we elicit a more nuanced perspective from people?” was a question we asked ourselves in order to determine the actions we could take to mitigate the problem at hand. The goal was to increase empathy for people outside one’s in-group in order to avoid hatred and close societal rifts along polarized stances. We knew we had to tell a story. We knew we had to tell it in a succinct yet impactful manner. Given the omnipresent battle for attention, our campaign had to convey a strong message to stand out and grab attention while being as concise possible. While we saw that text is a strong medium to convey one’s story, it needed a strong and noticeable visual component to it, which we realized in the form of posters. In order to find out whether our poster campaign can encourage people to consider different perspectives when forming an opinion on another person, we included a qualitative survey as part of our online poster campaign. As a result, we saw that a story in text form paired with strong visuals conveyed a message, albeit and inadvertently a different one to different people. Since the prominent person we included in our posters was charged with a range of public associations, we decided to level the field by moving to include largely unknown, everyday people as part of our posters. ■



