Visual Attentional Bias toward Injustice: Cause or Consequence of Justice Sensitivity?

An Approach Employing the Dot Probe Task

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“What's fair?”
“Like...underlying justice?” said Om [...].
“Sounds a human idea to me.”
“They’re inventive, I grant you.”

Conversation between
the Small God Om and the Sea Queen
Terry Pratchett (1992, p.217)

„Fair? Was bedeutet das?“
„Damit meine ich so etwas wie Gerechtigkeit“, erklärte Om [...].
„Klingt nach einem menschlichen Konzept.“
„Oh, sie sind sehr einfallsreich, das muss
man ihnen lassen.“

Gespräch zwischen dem kleinen Gott Om
und der Königin des Meeres
Terry Pratchett (1995, p.231)

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Landau, July 2010 Miriam Staubach

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Abstract

This paper explores the relation between Justice Sensitivity and an attentional bias toward just and unjust stimuli by the means of the visual dot probe task: (In)justice-related and neutral stimuli are presented briefly at alternative locations on a computer screen, and a small visual probe is displayed subsequently in one of these locations. It is assessed how rapidly participants identify a probe replacing the neutral or the (in)justice-related word, respectively.

Study 1 found that the higher a person had scored in Justice Sensitivity from an observer's perspective, the more he or she displayed a bias toward unjust (but not just) stimuli after witnessing an unjust incident. Unfortunately, this result is impaired by the lacking reliability of the dot probe task.

In study 2, the dot probe task is employed to train participants to focus on or avoid (in)justice-related stimuli by displaying the probe always in the former location of the (in)justice-related or the neutral word. A training toward (in)justice was proposed to produce a more pronounced attentional bias, stronger emotional and behavioral reactions to actually observed injustice in an experimental game, higher Justice Sensitivity scores, and a higher willingness to act against observed injustice, and vice versa for a training to avoid (in)justice. Against expectations, no according differences between the training groups were detected within the strictly experimental design.

Post hoc analyses included Justice Sensitivity observer scores of the participants which were obtained weeks before the experiment. Moral outrage and investment of own resources to reestablish justice in the experimental game did not depend on Justice Sensitivity or the training but it seemed that Justice Sensitivity (and not the training) influenced anger when one was confronted with an unjust situation. Also, the higher participants scored in Justice Sensitivity observer before the experiment, the more inclined they were to contribute time or money to Amnesty International, independent of the training condition. Within this model, persons who were trained to pay attention to (in)justice were more willing to show solidarity than persons trained to avoid (in)justice.

Implications for the understanding of Justice Sensitivity and suggestions for methodological changes and further research will be examined and discussed.

1 INTRODUCTION

Socrates, Lincoln, Thoreau, and Martin Luther King tend to speak without confusion of tongues...this is because the ideal principles of any social structure are basically alike. If only because there simply aren't that many principles which are articulate, comprehensive, and integrated enough to be satisfying to the human intellect. And most of these principles have gone by the name of justice.

Kohlberg, 1968 (as cited in Lerner, 1975, p.19)

Justice, the norms and laws of social interaction are just as important today as they have ever been. Prominent thinkers have commented on the subject, among them Aristotle, John Locke and Immanuel Kant, and a single look into any newspaper reveals that the issue has lost nothing of its relevance: How can limited resources such as places at University be fairly distributed? Is the school system a just one, if children of immigrated families don't have equal chances? What is a just sentence for a murder? But you needn't look into social issues in order to find that justice is crucial: At the workplace, among families, friends and any kind of relationship, justice is important.

While philosophy, theology and law try to provide standards and laws by normative reflections, psychological justice research "inquiries when and why social transactions are considered fair by outside observers and by those who are involved or affected by the event"(Schmitt, 1996, p.3).

Schmitt (1994) lists three functions of psychological justice research:

1) to measure beliefs and opinions concerning justice and justice judgments
2) to explore emotional and behavioral consequences of experienced injustice
3) to identify situational and personal factors which influence processes connected with these beliefs, opinions, judgments and consequences.

The topic of the present paper is located in the third field: It seeks to shed light on the information processing related to the perception of injustice in order to explain interindividual differences identified by psychological justice research.

Everyone knows such differences from personal experience: While one person is indifferent to an unjust incident, others are extremely outraged and tend to keep

thinking about it. While some persons engage in activities for a more just world, like working for human rights, others have no such interest.

Several constructs have been developed to account for these differences, among them Justice Sensitivity. Justice Sensitivity is considered a personality trait and a sensitive person is characterized by a frequent perception of injustice, a strong emotional reaction toward an unjust incident, a tendency to ruminate about it and an inclination to reestablish justice. This construct proved very useful to describe and predict emotions, cognitions and behavior toward injustice.

This paper aims at deepening our understanding of Justice Sensitivity by analyzing the information processing associated with these differences. Attentional processes are on focus: Are justice sensitive persons drawn toward justice and injustice-related aspects? Do they focus their attention more on (in)justice related issues than on other subjects? Of which kind is the relation between Justice Sensitivity and attention? Could an attentional bias be a cause for the interindividual differences? These questions will be addressed in the present paper.

The paper is divided into nine chapters. Chapter 2 briefly describes the historical background of when justice sensitivity research first entered the stage in order to understand its development in the context of other research lines and constructs. This is followed by a description of Justice Sensitivity itself and its correlates, focussing on recent research on related information processes. Furthermore, the question of situational factors to the experience of injustice is addressed. The theory part closes with the description of a paradigm which emerged in the field of Anxiety Vulnerability and is used to detect a visual attentional bias: the dot probe task. In chapter 3, the research questions are formulated by outlining a differentiated model of Justice Sensitivity which will be tested by the means of the dot probe, among others. An overview of the experimental design employed in the two main studies is given in chapter 4. Chapter 5 presents preliminary notes in regards to statistical tests, and chapter 6 explains details and results of two preliminary studies which served to gather experimental stimuli. The results of the two main studies are presented in chapter 7 and 8. A short discussion of results is inserted after each study, while in chapter 9 all results are discussed and compared, and implications for the proposed model of Justice Sensitivity as well as prospects for the future are presented.

2 Theoretical Framework

"As an empirical science, psychology is not searching for a universal ethic, but looking for interindividual differences and intraindividual changes regarding the content and structure of moral norms, their use as general or specific, flexible or rigid, their development, socialization and internalization. Further, research is done on how people account for their norms and justify them, in which way they abide by them, how they react toward a norm violation and how the very norms affect experience, judgment and action of human beings."

Leo Montada (1992, p.259, own translation)

2.1 Historical background: psychological justice research

Starting from the precise definition by Montada above, this chapter will give a short overview of the main achievements of the scientific discipline which emerged in the sixties of the twentieth century within social psychology: psychological justice research.

Because of the multitude of empirical studies, an exhaustive review cannot be accomplished within this paper. However, four issues were chosen to illustrate the research that was done: distributive justice, procedural justice, the justice motive and the curious phenomenon of blaming the victim.

Distributive Justice

Whenever goods have to be allocated, the question of distributive justice is raised and different principles might be applied, all with a different understanding of what is fair. In the following, the three most prominent principles will be described: equity, parity and need.

Equity theory (first introduced by Adams, 1965) states that a distribution is perceived as just when the ratio of inputs to outcomes is equivalent among the persons concerned. For example, consider two employees with equal ability and effort (and any other criterion deemed important). If one of them puts in more working hours, equity theory states that both will consider it fair when the one working more earns a higher salary. Beside equity, **parity** and **need** are the most prominent principles. Parity means that everyone receives an equal share (Lerner, 1977), and need, naturally, that everyone gets what he or she needs (Schmitt, 1996).

Procedural Justice

Distributive justice concentrates on the outcome but often the process of making a decision is just as important for a justice judgment – or even more relevant. Decisions like accepting or dismissing a job candidate are perceived as more fair when certain criteria are considered in the process. For example, Leventhal (1980) proposed six issues people abide when judging such a process: 1) Is the process the same for all persons at any times? 2) Are the decision makers neutral? 3) Is the decision based on correct information? 4) Is there a possibility to correct or withdraw the decision? 5) Are the interests of all affected persons considered? 6) Is the process in line with ethical and moral criteria?

In the case of all six questions being answered with 'yes', the respective process is generally considered just.

The Justice Motive

Is justice only a set of regulations, established and reinforced by the most powerful in society to enlarge and protect their power? Why do people then help others who are in need, even at high personal costs? Lerner (1975) introduces a genuine justice motive into the discussion which takes concrete (and sometimes very distinct) forms according to the society. However, he also defines a universal component as he says "people want, select and, if necessary, will create ways of settling disputes – getting what they deserve – which meet their needs which produce the desired result for them and the society"(p.9). Justice, the "inevitable manifestation of the human potential" (p.11), can be seen as a set of minimally functional norms. If they are not functional, the society will die out (Lerner, 1975). Lerner concludes that justice is more than a procedure to establish blame and punish or to guarantee social functioning – it is a way of maintaining important personal relationships.

Blaming the victim

One of the most intriguing findings of social justice research is that people have a desire to view the world as a just place where everyone gets what he or she deserves – and, in turn, everyone deserves what he or she gets. This tendency materializes in an effect quite contrary to the common view of justice: blaming the victim. The idea is that a person suffering some misfortune – like being poor or handicapped – *must* have deserved his or her fate in some way. Accordingly, Lerner found that persons

tend to derogate a victim in a series of laboratory experiments like the following: Students had to watch a fellow student supposedly suffering electric shocks. Finally, they were either given the opportunity to design the ostensible "victim" to a reward condition where she would receive money rather than shocks (thus reestablishing justice) or were merely informed that the electric shocks would continue. Students who had no opportunity of compensating the victim rated her considerably less favorable. Students who were allowed to reestablish justice (and virtually all of them did), did not reject the victim (Lerner, 1970, 1974).

Integration of a differential perspective and introduction of Justice Sensitivity

In the seventies of the last century, several additional and promising ideas of research emerged in justice research. Remarkably, they had in common that they integrated a differential perspective – this was the beginning (or the return) of a differential focus. According to Schmitt, Neumann & Montada (1995), this was a necessary development in the light of large proportions of variance which had remained unaccounted for by social psychology.

Rubin and Peplau (1973, 1975) derived from the findings of Lerner described above that people differ in their tendency to believe in a just world and that this tendency is motivated by a basic need for justice. The construct B**elief in a Just World** was born and it was demonstrated that the stronger a person believes in a just world, the stronger he or she will derogate an innocent victim.

In answer to contradictory results in regards to predictions deduced from the belief in a just world and doubts concerning a confoundation of the justice motive with knowledge, justification and implicit time perspectives, Schmitt (1997) suggested Justice Centrality and Equity Sensitivity as more direct measures of the justice motive than the belief in a just world.

Equity Sensitivity had been proposed by Huseman, Hatfield and Miles (1987) who found that persons can be classified according to their preference of distribution regarding the outcome/input ratios. Some people (called equity sensitives) do indeed prefer the principle of equity as proposed by Adams (1965). But there are two more types: 'Benevolents' prefer a smaller ratio than the one of others they compare themselves with, while 'entitles' prefer a larger one.

Dar and Resh (1993) found empirical evidence for interindividual differences in the **Sense of Deprivation**, which is generalized across type of resource (instrumental rewards, symbolic rewards, relational rewards), across reaction modes (judgments, feelings) and across contexts of deprivation like school or society.

Last but not least, several studies revealed that persons vary in their **Sensitivity to Personal Advantages**, such as living in a first world country (Montada, Schmitt & Dalbert, 1986; Montada & Schneider, 1989), and that these differences are stable over time (Montada, Dalbert & Schneider, 1990).

Based on these four exciting lines of research, Schmitt et al. (1995) drew the conclusion that there might be a difference in people's sensitivity to own *dis*advantages as well. A first systematic approach to identify indicators of a sensitivity to experienced injustice had been made by Schmitt, Neumann & Montada (1992) who had gathered first empirical evidence for the convergent and discriminant validity of measures for **Sensitivity to Befallen Injustice**. They concluded based on their results that sensitivity to experienced injustice can manifest in different ways, including perception, memory, emotion, coping and behavioral intentions.

These insights were transformed into indicators for the first measurement instrument of **Justice Sensitivity** from a victim's perspective: (1) frequency of perceived unjust events, (2) intensity of anger invoked by an unjust event,
(3) intrusiveness of thoughts about the event (rumination), and (4) punitivity, that is, the desire to punish the perpetrator (Schmitt et al., 1995; Schmitt, 1996). The new construct yielded an important difference to Equity Sensitivity (which depends on the preference of the equity principle): Justice Sensitivity does not confound justice and the preferred principle, it measures violations to any principle one might think adequate in a given situation.

Experimental versus correlational approaches in Justice Psychology

Social justice research and differential justice research are no antagonists but can make valuable contributions to each other: "The primary advantage of experimental research is that it makes possible causal interpretations of the observed associations between independent and dependent variables; the former affect the latter. […] On the other hand, correlational designs make possible to include as many variables as are deemed relevant in the explanation of individual differences" (Schmitt et al., 1992, p.3). Whereas the differential perspective offers insights into the (often large)

unsystematic variance of social experiments, experimental designs and methods can help to validate correlational findings.

In 2001, Hangarter, Schmitt & Ebert (2001) lamented that cognitive processes are largely ignored by researchers in the field of personality and individual differences. They felt that integrating paradigms of cognitive psychology could amplify and deepen our understanding of constructs like Justice Sensitivity. Their challenge was accepted by several researchers (cf. chapter 2.2.5), and the studies in this paper do join in. Two studies are undertaken to make use of the advantages of both: correlational and experimental research.

2.2 Justice sensitivity – the current construct

In the last 15 years, Justice Sensitivity has developed and diversified considerably, methods of measurement have changed and improved, and even the name underwent transformation. "Sensitivity to befallen injustice" changed to "Justice Sensitivity" (differentiated in four perspectives) and recently Schmitt, Baumert, Fetchenhauer, Gollwitzer, Rotundity and Schlösser (2009) adopted "Sensitivity to *In*justice". In this paper, the more common term "Justice Sensitivity" will be used (abbreviated JS from hereon). In the following section, JS and its correlates are described in more detail, providing more historical background where necessary.

2.2.1 The indicators of Justice Sensitivity

When Schmitt et al. (1995) presented the first JS questionnaire, it covered four indicators: frequency, intensity of emotion, rumination and the inclination to reestablish justice.

Frequency

Frequency has a threefold theoretical basis. First, it implies that an individual sensitive to injustice perceives incidents of injustice more frequent than non-sensitives, due to a lower perceptual threshold for (in)justice-related stimuli (Schmitt et al., 1995). Second, JS is thought to be associated with a chronic availability of justice-relevant concepts for interpreting events (Higgins, 1996), leading people to perceive social interactions more often from a justice-related point of view. The third line of thinking concerns memory: For a sensitive individual unjust events are

emotionally meaningful, and as such events have a memory advantage, they should recall unjust incidents more easily (Schmitt, 1995).

Item-example of frequency (Schmitt et al., 1992, p.38):
"Others take advantage of me without compensating me..."
(Response scale: Six-point rating scale from 1/ seldom to 6/ often)

Intensity of emotion

Violation of our personal norms makes us feel a certain way (Montada, 1992). The more a person is (in)justice-sensitive, the stronger is his or her emotional reaction toward an unjust incident (Schmitt et al., 1995), but the quality of the emotion depends on the role he or she holds. Anger is predominant when being treated unfairly by others (Mikula, 1986). Perpetrators feel guilty and the beneficiary of an unjust situation might suffer from existential guilt – resulting not from personal thoughts or actions, but from a situation beyond the individual's control (Tobey-Klass (1978); Montada, Dalbert, Reichle & Schmitt, 1985). Observing injustice while not being directly involved evokes moral outrage (Boll, 1998; Schmitt & Mohiyeddini, 1996).

Item-example of intensity of emotion (Schmitt et al., 1992, p.39):
"*If others take advantage of me without compensating me, I get angry..*"
(Response scale: Six-point rating scale from 1/ not at all to 6/ very much)

Rumination

A justice-sensitive person will react with strong emotions when confronted with injustice. Subsequently, "strong emotions tend to preoccupy the mind" (Schmitt et al., 1995, p.388) and lead to rumination. Furthermore, the extent of rumination should serve as an indicator to the importance a person attributes to an unjust event, in other words, to his or her sensitivity to injustice (Schmitt et al. (1992).

Item-example of rumination (Schmitt et al., 1992, p.39):
"*I can hardly get over it if others take advantage of me without compensating me"*
(Response scale: Six-point rating scale from 1/ exactly true to 6/ completely wrong)

Inclination to reestablish justice (punitivity)

The inclination to reestablish justice was originally called punitivity. It described the desire of a victim of an unjust event to punish or rebuke the perpetrator (Schmitt et al., 1992). Later, this view was broadened in two aspects. The first one is that an uninvolved observer will tend to reestablish justice as well, because all members of society have a common interest in raising the costs and reduce the benefits of transgressing their (justice) norms as anyone is a possible victim of such violations (Schmitt, 1996). Second, former research already showed that pro-social behavior can be predicted by sensitivity to unjust personal advantages (Montada et al., 1986), so today two tendencies to act are considered when someone observes or passively benefits from injustice: (1) punishment of the perpetrator and (2) compensation of the victim.

Item-example of inclination to reestablish justice (Schmitt et al., 1992, p.39):
"*If others take advantage of me without compensating me, I wish to pillory it*."
(Response scale: Six-point rating scale from 1/ exactly true to 6/ completely wrong)

Representation of the indicators in the current JS scales

All item-examples above were taken from Schmitt et al. (1992) who presented 70 items to measure JS from a victim's perspective. In the same paper, however, they reported that intensity of anger following an unjust treatment and rumination about such a treatment were much better indicators of the construct than the frequency of unjust experiences. Punitivity (today: inclination to reestablish justice) was found a better indicator than frequency, but not as good as the other two, judged by the convergent validity. Drawing a conclusion from these findings, Schmitt, Maes and Schmal (1995) left out frequency and punitivity when they reduced the scale to the more efficient 10-item-short form still in use today.

Furthermore, it is especially difficult to adopt punitivity to the other perspectives. To reestablish justice as a benevolent, for example, one might improve the situation of the disadvantaged or surrender his own advantages, these alternatives producing undesired variance (Schmitt et al., 1995). More details on this matter will be given in chapter 3.

Thus, the current scales only contain items concerning the indicators that proved to be most useful and unambiguous: intensity of emotion and rumination.

2.2.2 Victim, perpetrator, beneficiary, and neutral observer

As already hinted at in the precedent chapter, an unjust situation might involve different protagonists: A *victim* of unfair behavior by others, a *perpetrator* who actively treats others unfairly, a neutral *observer* (Mikula, 1986), and a beneficiary – someone who benefits passively from an unjust condition, for example, by living in the so called first world (Schmitt, Gollwitzer, Maes & Arbach, 2005). From hereon the different perspectives of JS will be referred to as JS_{obs} (observer), JS_{vic} (victim), JS_{ben} (beneficiary), and JS_{per} (perpetrator).

JS cannot be generalized over the four perspectives although there is common ground among them. They differ systematically in regards to associated cognitions, emotions and behavior when confronted with injustice as well as in their relation to other personality factors (Schmitt et al., 2009).

Moderate to high correlations between the perspectives (which have been found repeatedly) raise the question of their discriminant validity (Fetchenhauer & Huang, 2004; Schmitt et al., 2005). Nevertheless, correlations of a certain strength between the scales are congruent with theory and there is a wealth of empirical evidence in favor of a differentiation in spite of a common factor:

Validity of the four-facets structure was confirmed by exploratory and confirmatory factor analysis and the internal consistency of each scale was verified (minimum α = .92; Schmitt et al., 2005; Schmitt, Baumert, Gollwitzer & Maes, submitted for publication).

As already mentioned, the four perspectives differ in their location in the personality space, in the emotions associated, and in the strategies to reestablish justice. This will be discussed in detail for the three perspectives relevant to this paper: JS_{obs}, JS_{vic}, and JS_{ben}. Corresponding findings of the perpetrator's perspective can be found in Schmitt et al. (2009) and Schmitt et al. (submitted for publication).

2.2.3 A closer look at the observer's, victim's and beneficiary's facet

All perspectives include unique characteristics, although the degree of differentiation varies considerably. In the following, only the perspectives relevant for this paper will be considered: JS_{obs}, JS_{vic} and JS_{ben}.

Description and quality criteria of the Justice Sensitivity scales

The current scales to measure JS from the victim's, observer's and beneficiary's perspective have not changed since they were published in 1995 by Schmitt et al. The victim's scale was adopted to beneficiary and observer by adjusting its 10 items, changing as little as possible: Only the perspective and according feeling were replaced as in the following item: "It makes me angry when others are undeservingly better off than me" (victim scale), "I feel guilty when I am better off than others for no reason" (beneficiary) and "I am upset when someone is undeservingly worse off than others" (observer). These items are to be answered on a 6-point rating scale ranging from 0 (not at all) to 5 (exactly).[1] All scales proved reliable and efficient, thus Schmitt et al. (2005) concluded: "It seems justified to use the scales in future research" (p.210).

Location in personality space

The facets of JS differ in their location in the personality space**:** As expected, Schmitt et al. (2005) found that JS_{obs} correlates highly with other-related concerns such as empathy, role taking and social responsibility, but also with the belief in a just world, while JS_{vic} does not. The latter shows a different pattern: it is related to self-related and antisocial constructs such as suspiciousness, jealousy, vengeance, machiavellianism, and paranoia, indicating a more ambiguous character. Based on these findings, Schmitt et al. (2005) concludes that "observer [...] sensitivity [reflects] genuine moral concerns more purely than victim sensitivity does" (p.206). The latter seems to include an additional element of self-protection or even egoism to prevent disadvantage.

Associated Emotions

As mentioned above, the different perspectives in an unjust situation are associated with different emotions. Anger is the victim's reaction and the association between JS_{vic} and anger when one is treated unfairly is well substantiated - it was shown in the laboratory (Mohiyeddini & Schmitt, 1997), in a real life situation (Schmitt et al., 1996), and in a field study (Schmitt & Dörfel, 1999). Empirical evidence from Gollwitzer, Schmitt, Schalke, Maes and Baer (2005) and Montada et al. (1989) supports that passive beneficiaries of an unjust situation suffer from existential guilt, for example

1 Examples are taken from Schmitt et al. (submitted for publication).

persons living in the so-called first world. Finally, the unaffected observer's reaction is moral outrage (Dalbert, 1996; Schmitt et al., 2009); Wijn & van den Bos, 2009).

Justice Sensitivity, attitudes and behavioral tendencies

The different perspectives imply different tendencies to act. The kind of actional tendency provoked is of uttermost importance to this paper, especially concerning JS_{obs}.

Most empirical evidence concerns the victim which strives to take revenge or punish the perpetrator. This tendency was observed in the laboratory, where unfairly treated individuals were the more inclined to protest against injustice the higher they scored in JS_{vic} (Mohiyeddini et al., 1997). In a real life situation students who scored high in JS_{vic} were more likely to agree with the activity of the student parliament, which tried to change a random (and thus unfair) distribution of limited teaching resources among students (Schmitt et al., 1996). In a field study, Schmitt et al. (1999) found that a high sensitivity from a victim's perspective is correlated with a high importance of justice-related issues and the perceived discrepancy between the desired and the actual importance of justice at work. Moreover, high sensitivity increased the willingness to quit the job. Schmitt (2008) found out that after dismissal a negative attitude and thoughts of revenge were more likely among persons high in JS_{vic}, although the perceived injustice of the procedure was by far the most effective predictor. So, punitivity from a victim's perspective has a rather solid empirical base but a simple generalization to the other perspectives is not valid, because they are associated at least partly with different tendencies.

JS_{obs} and JS_{ben} (but not JS_{vic}) are associated with pro-social, other-oriented tendencies such as social responsibility and solidarity (= the willingness to engage in pro-social behavior) toward the disadvantaged (Schmitt et al., 2005). For example, persons living in West Germany are objectively privileged compared to those living in East Germany. It was confirmed in a longitudinal study that the higher the former score in JS_{ben} or JS_{obs}, the more willing they are to contribute (and thus surrender own advantages) to improving the living conditions in East Germany, or in other words, to show solidarity. In contrast, persons who scored high in JS_{vic} showed *less* solidarity – although all three facets were positively correlated (Schmitt, 1998; Gollwitzer et al., 2005). Also Montada et al. (1989) found out, that emotions such as moral outrage and anger are better predictors of the readiness to make pro-social commitment than

sympathy. As the JS scales include the affective reactions, it can be concluded that they are good predictors as well.

But there is more to it than seemingly logical responses. Research on the belief in a just world has shown that a beneficiary is prone to justify the victim's fate as self-inflicted, too, whenever the fate of the victim cannot be changed or costs would be high (Montada et al., 1986). Dalbert (1996) revealed that the observer of an unjust situation he or she has no power to change or compensate is likely to derogate the victim (for example, judging him or her as less attractive). These findings, odd as they may seem at first glance, can be satisfactorily explained by the theory of cognitive dissonance (Festinger, 1957): The belief in a just world is threatened by an innocent victim. To resolve the conflict between belief and reality, characteristics are attributed to the victim which might justify his or her fate (Dalbert, 1996). As JS_{obs}, JS_{ben}, and (although less strongly) JS_{vic} are correlated with the belief in a just world (Schmitt et al., 2005), the above described tendencies to act and behavioral consequences of JS might not be found in a situation where it is sensed impossible or costly to reestablish justice.

Justice Sensitivity and behavior

Results so far are rather convincing, nevertheless, Fetchenhauer et al. (2004) pointed out critically that the kind of studies described in the previous chapter "are limited in that they used only an attitudinal measure as the dependent variable [...] rather than actual behavior" (p.1018). To mend this, they conducted a study employing the paradigm of experimental games.

An example for such a paradigm is the following situation: A subject (person A) is given $50 in an experiment with the obligation to share the money between himself/ herself and a person B whom he or she does not know and will not meet. Person B has two options: Accepting or rejecting the offer of A. If Person B accepts, the money will be divided exactly as person A proposed, otherwise both will get nothing at all. Now the crucial question is: How much does a person offer in these situations? And what is the minimum amount of money that person B would accept? This kind of dilemma is called *ultimatum game*; another variant is the *dictator game* in which person B does not have the opportunity to reject the offer. A more detailed description can be found in Fetchenhauer et al. (2004). Brandstätter, Güth,

Himmelbauer & Kriz (1999) added a relevant element to the ultimatum game, the third person. In a *mixed game (*name given by Fetchenhauer et al., 2004), the money given to A is to be divided between B and C, but only B has the option to reject the offer in which case none of the three will get any money.

This paradigm has several advantages: The just offer is clearly defined (equal split) because nothing is known about achievements or inputs of the parties (Fetchenhauer et al., 2004). Furthermore, the willingness to give up own resources in order to achieve a fair distribution can be tested directly and "it is very clear to the respondents that matters of fairness and justice are at stake." (Henning-Schmidt, 2000, as cited in Fetchenhauer et al., 2004, p.1018).

Back to the question raised at the beginning of this section: Can JS predict real behavior? The answer given by Fetchenhauer et al. (2004) is 'yes'. They employed the mixed game and told participants that the three roles would be assigned randomly, but effectively, every participant turned out to be person B and was confronted with the same situation: Person A offered a fair share to them, but an unfair one to the passive person C. If B (the participant) accepted, the money would be distributed as divided, if not, none of the players would get anything. Participants were more likely to restore justice (that is to reject the offer) the higher they scored in JS_{obs} and JS_{ben}, sacrificing their own share of the money which was at stake. The opposite is true for JS_{vic}.

It was shown as well that persons high in JS_{obs} and JS_{ben} do more often offer an equal share in the dictator game than persons low in JS_{obs} and JS_{ben} or high in JS_{vic}.

Another study which employed real behavior as a covariate was the field study of Schmitt et al. (1999) who found that the number of days people did not come to work because of sickness increased with the perceived procedural injustice at work, and this relation was considerably more pronounced in persons sensitive from a victim's perspective.

2.2.4 Justice Sensitivity: stable trait or transient state?

In general, JS is considered a trait, this assumption is supported by empirical evidence for the sensitivity of observer, beneficiary and victim: Schmitt et al. (2005) submitted the data of a two-year longitudinal study to a simultaneous latent state-trait analysis (Steyer, Ferring, & Schmitt, 1992). Consistencies, namely the influences

of the latent trait, were about twice as large as occasion specificities which reflect systematic but unstable individual differences.

Although these results suggest that every facet of JS can be considered a stable trait, a considerable influence of the state – defined by Steyer (1998) as influence of the situation and the person x situation interaction – showed as well, accounting for about half as much as variance of the manifest variable as the traits did.

In a study from Wijn et al. (2009), situational factors were varied systematically by letting the participants experience or observe just, unjust and neutral events. JS was elevated when the person himself or herself is treated unfairly, showing in the victim's, observer's and beneficiary's scale. A just experience (and not a neutral one) elevates exclusively the scoring on the victim's scale. Reading about an unjust event (versus a just event) toward others shows a significant effect in JS_{obs} (and not in the other perspectives).

In regards to observed injustice, they divided participants into two groups and showed each a clip inspired by a media campaign of the Dutch national Aids Fund. In the just condition participants learned that anti-AIDS medicine is now equally available in western countries and third world countries. In the unjust condition it was lamented that medicine is hard to come by in third-world countries. Persons in the unjust condition reported significantly higher scores in JS_{obs} than participants who had watched the just movie.

When trying to explain rather than describe interindividual differences in JS, it seems useful to consider three aspects: the person (trait), the situation and the person x situation interaction (state).

2.2.5 Justice Sensitivity and information processing

In the last years, researchers started to unravel cognitive processes connected with JS, aiming to move from a merely descriptive to an explanatory approach. In order to realize this goal, a theoretical model of cognitive processes is indispensable. Integration of such a theory permits identification of single components of JS which can be used to explain former findings and, most importantly, they lead to further and more differentiated predictions of behavioral consequences and other hypotheses which can be tested in experimental designs, thus allowing for casual interpretations.

Explanation of Justice Sensitivity from associative network theory

Bower proposed the associative network theory in 1981. He stated that "human memory can be modeled in terms of an associative network of semantic concepts and schemata that are used to describe events" (p.134). In this model a thought is represented by a proposition or *node*, while the activity of thinking is paralleled to activation of a certain network. Activation spreads through the network by associative linking between the nodes.

Moreover, Bower found that persons could remember learned issues better when they were in the same emotional state learning and recalling (sad versus happy). He concluded that emotions are represented as nodes, too, and that they are linked with according memories. So, when an emotional node is activated associated memories and concepts will be activated as well, reducing the threshold of activation ("remembering") of these memories.

How can we describe JS in these terms? The answer is a network of justice and injustice-related cognitions, schemata and emotions. In a sensitive person, this network has more nodes and more associations between them, is well-connected to the according emotions (for example moral outrage) and has a lower activation threshold than in a non-sensitive person (cf. Baumert, Gollwitzer, Staubach & Schmitt, in press).

According to Higgins (1996), *availability* is the mere existence of a knowledge structure in memory, while *accessibility* or *activation potential* refers either to different degrees of activation provoked by a given stimulus or to the fact that few stimuli might cause the same level of activation in a network with high accessibility as many stimuli in a network with low accessibility. However, accessibility should increase in any case once the network is activated as Anderson (2004) points out that "two factors determine the level of activation of a memory. One is how recently we have used the memory [...], the other factor is how much we have practiced the memory" (p.181).

Baumert et al. (2009) concluded that the activated network guides subsequent information processing such as attention and interpretation. This is plausible because the recent activation of the network would facilitate a renewed activation even few or small hints would suffice (resulting in an attentional bias) and ambiguous stimuli would more likely be looked upon in a justice-related way.

Thus, accessibility seems to have two components: a difference in the latent activation potential of the inactive concept and a kind of self-reinforcing circle as the once activated shapes processes as attention and interpretation – which will in turn increase activation (Baumert et al., in press).

This line of thinking coincides with the mood-state hypothesis proposed by Persons and Miranda (1992) which claims that interindividual differences in depression related cognition are stable but only accessible during according mood states.

Recently, a considerable body of empirical evidence has accumulated around information processing associated with JS, including encoding of information in memory, automatic attention and interpretation of ambiguous stimuli. The results concerning availability will be briefly discussed, focussing on their meaning for the above presented model, before proceeding to accessibility, the latter being crucial to present purposes.

Three studies provide empirical evidence on an association between JS and availability of injustice-related networks. Baumert et al. (in press) report that individuals high in JS are better at remembering injustice-related information in a recognition task than persons low in JS. No memory effect was found for neutral information. In a second study, just information was included as a dependent variable and a similar memory advantage of justice-sensitive persons emerged, but only when (in)justice-related concepts were activated by asking participants to give a justice judgment.

Further evidence comes from Baumert, Gschwendner-Lukas and Schmitt (in preparation) who found that a person's capability to judge a distribution of money as fair or not fair according to the present context (profit-orientated in a company versus need-orientated in a family) was impaired by time pressure – but only among persons low in JS. They assume that injustice-sensitive persons have an advantage when integrating complex context information related to justice which is based on higher elaboration of their cognitive structures in the domain of injustice and justice.

In summary, there is first evidence confirming that JS is indeed associated with a higher availability of injustice and justice-related concepts, which means that highly

sensitive individuals do have a well differentiated concept of injustice and justice stored in memory.

First empirical evidence hints that subsequent interpretation of ambiguous stimuli is influenced by observing a just or unjust situation, supporting the theory of a higher accessibility connected with JS. As this effect only occurs among justice-sensitive individuals, it adds weight to the assumption that accessibility of (in)justice-related networks is associated with JS. Still, the evidence is rather mixed and complex:

Baumert et al. (in press) found that after watching an unjust scene, persons high in JS rated ambiguous behavior as less just (but not less positive) than persons low in JS. No such effect occurred in the neutral film condition.

In a subsequent experiment (Baumert et al., 2009), persons high in JS rated an ambiguous character as less just than persons low in JS, after being exposed to a neutral or unjust priming. The effect, however, was more pronounced in the latter condition. It should be carefully considered, however, that persons *high in JS* rated the character equally unjust in both priming conditions (the difference between the priming conditions is due to the reactions of participants *low in JS*), so this result cannot be considered a consequence of a bias related to a higher accessibility among justice-sensitive persons.

Another study employed the Emotional Stroop Task in order to prove a link between JS and a higher accessibility of justice-related contents. The stroop effect is based on schema theory: High activation of a schema related semantically to the target word attracts the attention of the participant and this distraction leads to slightly delayed response latencies: the effect is called Stroop interference. The EST is a frequently-used paradigm, especially in (but not limited to) the field of clinical psychology (Hangarter et al., 2001).

The first study employing the EST in connection with JS was realized by Hangarter (2001, Hangarter et al., 2001). In his study, one group was primed by an unjust film sequence to activate injustice-related concepts. The other group watched a neutral film. In the following EST, the groups did not differ (as expected) in naming the color of just and unjust in contrast to positive and negative words unrelated to justice. Highly sensitive persons, however, reacted slower to negative words in general (neutral and injustice-related) after watching the unjust clip.

Taken together, the EST did not provide support for the assumption that there is an attentional bias toward justice-related issues connected with JS. Possibly, there is another kind of bias toward negative stimuli, but then, this is not completely in line with the sensitivity construct which assumes a justice-related bias, and not a negative one.

2.3 Situational factors of the experience of injustice

What characterizes an unjust incident? What type of events is it that people regard as unjust? Are there general factors that such situations have in common? Considerations along these lines of thinking are important to create an adequate experimental design. Mikula (1993) proposed five situational elements that might lead a person to judge an event as unjust:

1. Violation of entitlement
2. Personal causation: the violation is causally attributed to an action or omission of some other agent (a person, group, or an institution) rather than the person affected
3. Controllability: Had the perpetrator the possibility to act otherwise?
4. Intention: Was the action or omission intentionally or purposefully produced?
5. Lack of justification regarding the perpetrator

It is important to note that a justice judgment always depends on the perceiver. For example, although a person might feel perfectly entitled to claim a certain right, this point of view might not be shared by a passive observer, in which case the observer would not judge the violation of this ″right″ as unjust. Situations can be more or less ambiguous in regard to these elements, although there might be rather typical unjust situations. The final judgment always depends on the person judging.

In an descriptive approach, Mikula (1986; 1993) classified unjust situations described by student participants. He found that events of distributive justice are only one part of the picture: A considerable additional proportion of these events referred to “manners in which people are treated in interpersonal interactions and encounters. Prototypical of this latter category of unjust treatments and events are inconsiderate, impolite or aggressive conduct; treatments which violate a person's dignity”(Mikula, 1993, p.228).

In an extension of Mikulas's studies, Clayton (1992) asked students to describe unjust incidents but with one important alteration: The students were allowed to report incidents which struck them as typically unjust without the necessity of personal involvement. Considerably more incidents in public and social setting were reported. She also found that unjustified accusations and unfair punishment, among others, are cross-culturally condemned as unjust. In public settings, most of the reported incidents involved "a power differential with the respondent at a disadvantage" (Clayton, 1992, p.76).

The described characteristics of an unjust situation provide a theoretical base to the experimental design of the studies of the present paper.

2.4 Classification of this paper within the research context

The first part of the paper served to give an overview of the origins and the development of the JS construct and the research to date.

This thesis attempts to shed light on the attentional processes associated with the sensitivity to justice, so it directly joins in with the efforts of Hangarter (2001) who was the first to investigate visual attention in this field. As the findings of Hangarter were rather ambiguous, more research is required to elucidate whether there is a visual attentional bias for just and unjust stimuli which is associated with JS. It is possible that such a bias was not found due to inherent flaws of the EST.

The associative network theory is very useful to illustrate processes shaped by JS and in the formulation of the research question (cf. chapter 3), a model will be presented which is based on what was described so far.

The present paper was inspired by the work of Colin MacLeod and Andrew Mathews who are prominent names when it comes to information processing and emotional pathology and did considerable work in regards to an attentional bias in Anxiety Vulnerability (for an overview see Mathews & MacLeod, 2005). As an answer to the shortcomings of the EST, they developed a different measuring instrument for visual attention in 1986, the visual dot probe (MacLeod, Mathews & Tata, 1986).

The visual dot probe task (called dot probe from hereon) not only overcomes some of the restriction of the EST, it can also be used as a training device to experimentally induce an attentional bias and therefore allow for causal interpretations (MacLeod, Rutherford, Campbell, Ebsworthy & Holker, 2002; Mathews & MacLeod, 2002). This

paradigm will be outlined in the subsequent chapter to round off the theoretical framework on which the research questions of this thesis are based.

2.5 The visual dot probe task

In a review of the last decade of research on Anxiety Vulnerability, Mathews et al. (2005) observe that anxious individuals are characterized by particular types of associative biases: biased intrusive ideation, biased inhibitory control, and – most important for the present paper – biased attention. The attentional bias in the context of the dot probe paradigm is crucial for this paper and will hence be described in detail in this chapter.

The origins of the dot probe paradigm in Anxiety Vulnerability

The dot probe task was introduced by MacLeod et al. in 1986 and although it underwent some modification since, the basic assumption about its way of working has remained the same:

A person concentrating his or her visual attention on a certain area on a computer screen will identify a stimulus appearing in that very area faster than a stimulus appearing in another (nevertheless close-by) spot. Typically, two words are presented one above the other on the screen, separated by few centimeters. Then the words vanish and one of them is replaced by a small symbol, the dot probe. Participants are required to identify the probe (for example if it consists of one or two dots) and press the according button. Immediately, two new word pairs appear and so on.

The response latencies serve as dependent variable; they should be smaller when the dot appears in the former location of a stimulus word (contrasted to the neutral word appearing at the same time), because the visual attention is already collocated in the area where the probe appears. Examples for such a stimulus word for highly anxious individuals are *injury* or *criticized* (MacLeod et al., 1986).

2.5.1 Advantages and criticism of the dot probe task

Theoretical advantages of the visual dot probe paradigm

The dot probe task requires a neutral response (button pressing) to a neutral stimulus (dot probe) and thus eliminates the possibility to interpret the effect as mere response bias to a certain kind of stimuli. It offers a direct measure of the distribution of visual

attention, overcoming paradigms like the EST, which measure attention over the loop way of an impairment of the cognitive process and may "reflect emotional disruption effects rather than distribution of spatial attention" (Mathews et al., 2005, p.169; cf. MacLeod et al., 1986).

Reliability of the dot probe task as measurement instrument

Schmukle (2002) criticized lacking information concerning the reliability of the dot probe. In an own study he found the task to be a "completely unreliable measure of attentional allocation in non-clinical samples" (Schmukle, 2005, p.595).

Although this is certainly a severe impairment of the task as measurement instrument two aspects should be pointed out: (1) There are important differences between the details of the task employed by Schmukle and the one in the present paper: For example, Schmukle presented the words only for 100 ms (500 ms in the present studies), and he used the antiquated design where the probe appeared in only 50 % of the trials and the participants were to respond *if* the probe was detected (it had always the same shape). In the present study, a probe appeared in every trial and had to be identified, requiring the participants to press the according key. Judging from the overwhelming empirical success of the visual dot probe (see below) one might doubt that it is a result of a mere occurrence due to random shifting of error variance. Still, Schmukle (2005) pointed out that findings in non-clinical studies are rather mixed. Thus, it is advisable (and in any case required by scientific standards) to keep a close eye on the reliability when analyzing and interpreting the data.

Objectivity and Ecological validity

Response latencies are a highly objective, standardized measure. If the task is carried out correctly, the experimenter should have no effect on the results. Analysis of the data is rather straightforward, although there is an argument about how to treat outliers (cf. chapter 7.6). However, objectivity is obtained at the expense of ecological validity: While the dot probe might provide important insights into the attentional process, the possibility of generalization is limited and needs further evidence.

Empirical evidence by the dot probe

MacLeod et al. (1986) found that clinically anxious subjects detect a probe faster in the former location of a negative word, while the visual attention of control subjects consistently shifted away from the negative term. Since 1986, this finding has been supported by a wealth of evidence. It was shown many times under varied conditions that clinical anxious persons show a bias whereas controls do not (cf. MacLeod & Mathews, 1988; Eysenck, 1992; Mathews & MacLeod, 1994, 2005) and the same effect appeared in a non-patient population depending on the level of trait anxiety (Broadbent & Broadbent, 1988).

Beside Anxiety Vulnerability, the dot probe was successfully applied in research in the fields of clinical depression (Mathews, Ridgeway & Williamson, 1996; Bradley, Mogg & Lee, 1997), obsessive-compulsive disorder (Tata, Leibowitz, Prunty, Cameron & Pickering, 1996), high alcohol consumption (Loeber, Vollstädt-Klein, von der Goltz, Flor, Mann & Kiefer, 2009) and non dependent social drinkers (Duka & Townshend, 2004), cigarette smokers (for example Hogarth, Mogg, Bradley, Duka & Dickinson, 2003), eating behavior (for example Rieger, Schotte, Touyz, Beumont, Griffiths & Russell, 1998; for a review see Faunce, 2002), and achievement and failure (Faunce, Mapledoram & Soames Job, 2004), to list just a selection.

The dot probe is considered appropriate to measure an attentional bias, defined as automatic direction of cognitive resources to a certain kind of stimulus (Mathews et al., 2005).

2.5.2 Beyond correlational research: dot probe in experimental research

So far, the evidence covered illustrates that the dot probe paradigm proved a successful paradigm but "clearly, however, the mere association of a distinctive pattern of information processing with an emotional condition cannot serve to establish its casual status" (Mathews et al., 2005, p.184). In answer to this situation, the dot probe task was rearranged. More than a mere method of measuring, it was now used as a training device and research advanced from a correlational approach to an experimental one. (MacLeod et al., 2002; Mathews et al., 2002; Mathews & Mackintosh, 2002).

It is commonly known that for casual interpretations the direct manipulation of the independent variable and the subsequent test of the dependent variable under experimental conditions is necessary or at least most convincing. Every other

approach (including research with remitted groups and prospective approaches) is inherently flawed, because both, the independent and the dependent variable, might be correlates of a third, maybe unknown one (cf. Mathews et al., 2005). Thus, this new paradigm was established to allow for causal conclusions.

Induced attentional bias

The experimental design developed by MacLeod et al. (2002) works as follows: Participants with normal levels of anxiety were chosen as subjects and as independent variable served the following training procedure: Pairs of words (one negative, one neutral) were briefly presented on top of each other, followed by one or two dots, the probe. The subjects had to distinguish as quickly as possible if the probe consisted of one or two dots and press an according key. For the attend threat group, the probe always appeared behind the negative word and as expected, in a subsequent non-contingental test phase this group was faster to detect probes in the former location of a negative word than in the former location of a neutral word. Results were reversed for the second training group where the probe always appeared in the former location of the neutral word.

In a subsequent stress task the participants had to work on 30 difficult, partly unsolvable anagrams under timed conditions, while being videotaped for what they believed to be class demonstration purposes. The training effects transferred to this situation: The attend threat group reported greater increases in negative mood than the avoid threat group which had been trained to focus on neutral stimuli (MacLeod et al., 2002).

"By implication, learning to attend to threat cues served to influence how participants processed the later stress task, leading to increased emotional reactivity. [...] These studies allow the important conclusion that induced attention bias can causally influence vulnerability to subsequent stress"(Mathews et al., 2005, p.186).

In a subsequent study even an effect on trait anxiety was detected: Mathews et al. (2002) found in a short-term longitudinal study that the impact of several thousand training trials away from threat which were spread through a time period up to a month, reduced trait anxiety of highly anxious individuals. No such effect occurred in a control group who completed the same task but without contingency.

In clinical environment parallel findings emerged concerning the reduction of social anxiety. Malcolm (2003, as cited in MacLeod, Campbell, Rutherford & Wilson,

2004) found that this procedure can be applied clinically as successful intervention. She used an online version of the dot probe, and each participant completed one session a day. All participants had met diagnostic criteria before the training. While social phobia of a control group – who received a non-contingental training – did not change, the training group reported a significant attenuation of their symptoms. Accordingly, Li, Tan, Qian and Liu (2008) reported that highly socially anxious individuals showed reduced anxiety after seven days of training while no such effect occurred in a control group.

Reviewing recent research on depression and anxiety, MacLeod, Koster and Fox (2009) sum up that "CBM [Cognitive Bias Manipulation] procedures exerted their intended impact on selective processing across all these differing populations and served to modify their affective symptoms" (p.90). Moreover, they report that first encouraging, although not always consistent findings emerged in alcohol dependency and eating disorders.

One important detail shall be pointed out: Although in literature the most central work of MacLeod et al. (2002) is often cited as employing threat vs. neutral (or non-threat) words, even by himself (cf. MacLeod et al., 2004), this is not congruent with the original description of the study. Indeed, the word pairs did not differ in their relation to threat but in their valence: Each pair of words consisted of one emotionally negative and one emotionally neutral word.

In study 2 of the present paper, first steps were taken to adopt this experimental design to the field of JS in order to replicate the experiment of MacLeod et al. (2002).

3 Problem Formulation

This chapter wants to lead from the theory to the concrete hypotheses. It starts by giving an overview of the theoretical assumptions adopted in this approach, especially because they differ in some points from views presented in the first part of this paper. Afterwards, the expected interaction between information processes and JS will be outlined. The principal point of this paper is to identify the role of an attentional bias in information processing related to JS by means of the dot probe procedure. Thus, possibilities and limitations of the dot probe research will be explained, concerning the model of JS as presented in this chapter.

The appropriateness of the four indicators of Justice Sensitivity

Analyzing the JS construct as described by the literature presented so far, it seems strange that no revision of the original JS concept has been undertaken based on the new empirical evidence (including but not limited to information processing). Especially the four indicators theoretically derived by Schmitt et al. (1995) have remained untouched by criticism: Recently, they were once more presented as equally important for measuring the construct of JS (Schmitt et al., 2009). But are they really?

Empirical evidence from the validation of the scales in 1995 (Schmitt et al.) had already shown that convergent validity was lower for punitivity than for intensity of emotion and rumination and the results of frequency were even lower – among other reasons, this is why these two indicators were not included in the short version of the questionnaire which has been in use ever since.

The wealth of empirical evidence obtained by means of the short scales supports the decision Schmitt et al. made 1995: Rather high correlations between the JS scales, behavior and other personality constructs have been found (cf. chapter 2.2).
Therefore, a closer look on the two excluded indicators was taken.

Inclination to reestablish justice

When the construct broadened to include more than the victim's perspective, the adoption of punitivity (today: inclination to reestablish justice) involved a special challenge as the tendencies to act involved were not yet so clear: revenge is typical for the victim of an unjust incident, a neutral observer or judge might claim fair

compensation or an appropriate punishment, the beneficiary on the other hand might try to help less fortunate individuals or waive his or her own advantages and so on (Schmitt et al., 1995). A variety of alternatives include undesired extra sources of variance, that is why the "tendency to act" was dismissed when the short scales were constructed (Schmitt et al., 1995; cf. chapter 2.2.1).

The short scales are rather good predictors of behavioral tendencies and behavior (cf. chapter 2.2.3.), yet, actual behavior had never been included in the indicators and in my opinion, it would be appropriate to anchor behavioral tendencies outside the construct as well, stating it as a clear consequence of the antecedent processes and not as a mere correlate. Moreover, by stating intensity of emotion and rumination as the core of the construct, their theoretical distance from actual behavior would give even more credit to findings in this area as in general it is rather a challenge to find strong relations between personality traits and actual behavior (Fetchenhauer et al., 2004).

There is another theoretical reason to doubt the appropriateness of *inclination to reestablish justice*: In chapter 2.2.3 it was pointed out that especially JS_{obs} and JS_{ben} are correlated with the belief in a just world. Persons with a strong belief in a just world try to preserve this belief and when there is no possibility of changing the real world, or this option would be costly, such person tend to restore justice in the "inner world", for example by blaming the victim (cf. chapter 2.1). Thus, while a lack of affective reaction toward or rumination about injustice seems to indicate low JS quite clearly, a lack of tendency to act might include that a sensitive person is busy restructuring his or her mind to escape the conflictual feeling of cognitive dissonance (Festinger, 1957). In short, it is proposed to consider tendencies to act and actual behavior as one of the possible consequences of high JS, rather than putting it side-by-side with intensity of emotion and rumination.

Frequency

For the lack of convergent validity of frequency, explanations have been offered, for example, that frequency is a measure of both, subjective and objective differences in the experience of injustice (Schmitt et al., 1995). This might be a reason, although an intuitive answer is not always correct. It was discovered, for example, that objective deprivations because of gender, ethnicity and socioeconomic status are largely unrelated to the Sense of Deprivation (Dar et al., 1993). No explanation is offered as

to why frequency should depend so much on external factors and, assuming that it does, why it is not discussed separately from *intensity of emotion* and *rumination* which are both more stable.

As a construct of sensitivity, JS is theoretically closely related to the sensitivity concept in perception: the low threshold to a certain class of stimuli (cf. chapter 2.2.1). But is this appropriate?

Empirical evidence on the accessibility of (in)justice-related concepts (associated with frequency) is rather ambiguous and does not entirely support Schmitt's (1995) assumption that high JS is related to a permanently more frequent perception of injustice. As mentioned above, in nearly all cases a priming was necessary to find according effects, so frequency seems to be influenced rather a lot by situational factors. The same fact, however, fits nicely into a model assuming that the (in)justice concepts do have to be activated and will only then have an effect on attention and interpretation. Additionally, this would account for empirical findings of *frequency* being related to JS, but not nearly as strong as *intensity of emotion* and *rumination* (cf. chapter 2.2.1).

Within this paper, the term "Justice Sensitivity" is defined in a stricter way than it is commonly used in literature, limiting the construct to the two indicators it is measured with on a methodical level: *intensity of emotion* and *rumination*. This differentiation seems to be especially useful in the context of information processing where explanations rather than mere correlations are examined.
Still, frequency and behavioral tendencies are not eliminated, of course, but placed as conditional factor or consequence, respectively, outside of the construct JS.

Frequency as condition

As mentioned above, one explanation of the rather small convergent validity of frequency is that it might well depend on more than personal factors – mirroring an objective difference in the confrontation with unjust situations as well (Schmitt et al., 1995). However, a model of JS without frequency as inherent component gives room for other explanations, more in line with recent empirical findings.

It is thinkable that frequency is not as stable as affective reactions and rumination because it is not always active, even in highly sensitive individuals. The introduction of schema theory in JS (cf. chapter 2.2.5) permits a promising new perspective: A bias for injustice might be latent until the network is activated. As a result of the

activation, a justice-sensitive person starts to focus on injustice while a non sensitive person does not. While ruminating, the network can be considered activated as well, so persons high in JS with their tendency to ruminate about unjust events would display a bias more often than actually encounter an unjust situation, but, however, *not* always and not as well-predictable as the emotional reaction.

And here it becomes very clear why mentioning frequency in the same level as rumination might be misleading. Assuming that frequency is a side-effect or part of a self-reinforcing circle, it must be treated differently than the other components. For example, one would expect an unjust priming (causing an activation of the concept) as a necessary condition to find meaningful differences in frequency between persons sensitive and non-sensitive to injustice.

Indeed, this was the result of an experiment exerted by Baumert et al. (in press) about the interpretation of ambiguous stimuli (naturally, frequency is also influenced by an interpretation bias). In a following study they found that persons high in JS rated an ambiguous character as less just than persons low in JS, even (but less pronounced) in the neutral condition.

In a study employing the EST (Hangarter, 2001), the pattern of findings was mixed but the relation between an attentional bias and JS seemed to depend on the type of priming (unjust versus neutral).

Interaction between state and trait

It seems reasonable to conclude that some characteristics of JS show more pronounced (or exclusively) when the individual is in an injustice-attentive state, that is when the concept of injustice is activated. Wijn et al.'s study (2009; cf. chapter 2.2.4) demonstrated that unfair and fair events elevate JS state. Although they did not test further consequences of this elevation we might take their results as a hint that activation of JS can be induced by situational factors, and is stronger following unjust than just events while a neutral event does not affect JS state.

Hence, in this paper JS will be considered as a construct including both, trait and state parts. Although the trait JS is stable over time it influences perception, cognition, emotion, and behavior more pronounced and even differently depending on its state: active or latent. The state can be activated by an encounter with an (in)justice-related situation.

A bias for justice and injustice?

It is assumed that justice sensitive individuals have a bias toward injustice and justice alike (cf. chapter 2.2.5). Still, the valence of the stimulus might be the crucial factor. Employing the EST, Hangarter (2001) found that after an unjust priming highly sensitives tended to focus on unjust and negative stimuli – and not on just stimuli. On the other hand, no just priming condition was realized, so the existence of an attentional bias toward just words is yet to be explored.

In the studies of Wijn et al. (2009, cf. chapter 2.2.4), a persons' JS was elevated when they experienced unfair treatment to themselves. The sensitivity toward observed injustice was only affected by an unjust film clip, not by a just control condition: Participants who had observed injustice reported significantly higher scores in JS_{obs} than participants who had watched the just movie.

This issue has not been investigated further yet, but it seems that just incidents do not activate the network as strong as unjust ones – and maybe not at all. Also, it is within the realms of possibility that just events reduce JS_{obs}. Based on this lack of information, it was decided to include both, justice and injustice-related stimuli in the studies of the present paper and analyze them separately in order to detect exclusive or contradictory phenomenons. This seems of even more importance, as valence appears to be a crucial factor in studies employing the dot probe as a training device (cf. chapter 2.5).

Effects of the training on the different facets of Justice Sensitivity

Different from Anxiety Vulnerability, JS is a construct including different perspectives. Due to the restrictions of the dot probe paradigm (including a very elaborate way to choose words which do not differ in anything but their relation to justice and injustice), a perspective-specific training could not be realized because it would have included terms like "defend oneself" (victim) or "intervene" (observer) which have meanings far beyond the justice relation, thus allowing for a variety of alternative explanations. For example, one might argue that participants were primed to take action – and within the employed experimental design, the only way to take action was to reestablish justice. Furthermore, it is rather difficult to find single words reflecting a certain perspective. Thus, when employing the dot probe paradigm this is not an option.

The process of the training is closest to the observer's perspective, as the participant is not directly involved (as are victim and perpetrator), neither benefiting. On the other hand, he or she is not observing an actual incident of injustice but merely weak situational hints.

Still, all perspectives share a common aspect, which can be described as genuine moral concern. As a consequence, inducing an attentional bias for (in)justice-related information should activate (in)justice-related concepts independent from the perspective. When a person trained to focus on (in)justice observes injustice afterward, his or her reaction from an *observer's* perspective should be more pronounced than the reaction of a person trained to avoid (in)justice. Consequently, the state of JS_{obs} should be elevated afterward, but not of JS_{vic} or JS_{ben}.

Goals of this paper in regards to the proposed model of Justice Sensitivity

The visual dot probe task was never used in the context of JS. To close this gap, the first study employed an quasi-experimental design as close as possible to the studies of MacLeod et al. (1986) and Mathews et al. (2002) which were described in the preceding chapter.

The first study has two central goals. One is to elicit whether there is an attentional bias toward justice and injustice related to JS_{obs} that can be detected by the dot probe. The second goal is to test whether this bias takes effect according to the above described model: Does it only occur among highly sensitive individuals after an unjust priming?

If this is the case, it would imply that frequency (the attentional bias) is indeed a result of situational factors, and would further support to detach it from the indicators of the construct and collocate it as a consequence or interactional factor.

In the second study, the model of a self-reinforcing circle was partly tested by trying to directly manipulate attention. If artificial activation and deactivation of the bias is possible, it should hence have an effect on the emotional and behavioral reactions associated toward injustice, and a subsequent effect on JS itself. Such effects would show strong evidence as to the influence of the bias on subsequent information processing. If, on the other hand, no according effects in attitude and behavior are

found, it will be possible to analyze where exactly the flaw took effect. Data in regards to the bias, JS, emotions, real behavior and tendencies to act will be available.

In case of a confirmation of the hypotheses, the bias would be established as a cause for emotions and behavior connected to JS. The strictly experimental design meets the claim for more explanatory approaches in personality research and, naturally, allows for such a causal interpretation.

3.1 Empirical Hypotheses

Several empirical hypotheses can be derived from the theoretical considerations described in the previous chapters; they will be listed here. The hypotheses are followed by the methodical part of the paper, which describes two studies that aim to test these hypotheses.

The goal of the studies presented in this paper is to test whether there is a connection between JS and an attentional bias measured with the dot probe, to understand its nature (study 1), and to asses whether emotions, behavior and JS itself can be influenced by manipulating this bias (study 2).

The visual bias is measured by a s*peeding index* which will be explained in chapter 7.5. However, the more common (but not as precise) word 'bias' will be used in the hypotheses to allow for rapid understanding, and for present purposes it can be considered as identical to 'speeding'.

3.1.1 Study 1

Hypothesis 1: relation between JSobs and attentional bias

A correlation exists between JS_{obs} and an attentional bias toward just words (contrasted with positive words) and unjust words (contrasted with negative words), but only when injustice-related concepts were activated before by a priming.

3.1.2 Study 2

Hypothesis 2: effect on response latencies

Hypothesis 2.1: Compared to the baseline measured before the training, participants trained to pay attention to (un)just stimuli will react faster if a stimulus appears in close vicinity to a justice-related word than if it appears close to the neutral word and vice versa for the other group.

Hypothesis 2.2: Compared to the baseline measured before the training, participants trained to pay attention to (un)just stimuli will react faster if a stimulus appears in close vicinity to an *in*justice-related word than if it appears close to the neutral word and vice versa for the other group.

Hypothesis 3: effect on the intensity of emotions (exp. game)

Persons trained to pay attention to (in)justice experience more pronounced anger and moral outrage when confronted with an unjust incident than persons trained to avoid (in)justice.

Hypothesis 4: effect on real behavior (experimental game)

Persons trained to pay attention to (in)justice invest more own resources to reestablish justice by compensating the victim or punishing the perpetrator than persons trained to avoid (in)justice.

Hypothesis 5: effect on JS

Hypothesis 5.1: The level of sensitivity toward (in)justice (after being exposed to injustice) depends on the perceived training: The attend (in)justice group displays higher levels of JS_{obs} than the avoid (in)justice group.

Hypothesis 5.2: The scores of JSvictim and JSbeneficiary do not differ between the training groups.

Hypothesis 6: effect on the willingness to act (AIQ)

Persons trained to pay attention to (in)justice have a stronger inclination to act against injustice than persons trained to avoid (in)justice: the former are more willing than the latter to actively engage with Amnesty International by signing petitions and contributing their time or money.

4 Experimental Design

In the empirical part of this paper four studies are presented in total. Two of them are preliminary studies necessary to obtain the stimulus material, they are thoroughly detailed in chapter 6 and will be described by the name of *word study 1* and *word study 2*.

This chapter shall serve as an overview of the two main studies which aim at testing the hypotheses developed in the theoretical part by means of scientific methods provided by the social sciences. In the following, they are referred to as *study 1* and *study 2*. This chapter includes explanations in regard to the methodical approach, the experimental design and the choice of dependent variables, detailing their relation to the to be tested hypotheses.

4.1 Common aspects of study 1 and study 2

Aspects which did not differ between study 1 and study 2 are detailed here.

4.1.1 Justice Sensitivity scales

The JS scales of observer, victim, and beneficiary derived from Schmitt et al. (2005). They are separated by short instructions, highlighting the perspective at issue. A detailed description of these self-report scales and their characteristics is given in chapter 2.2. The exact wording of the original questionnaire can be found in appendix A.

4.1.2 Experimental hardware and software

The experimental procedure was presented on Laptops with 14″ screens. The presentation of the complete experimental procedure with the exception of the Amnesty International Questionnaire was realized with the software program Inquisit (Draine, 2006) by Millisecond Software.

4.1.3 Subjects

All participants were volunteering first year psychology students, who were asked to take part during lectures. Each student received a certificate for their attendance. At

the University of Koblenz-Landau, psychology students need a certain amount of these certificates to be admitted to the intermediate examinations. Every one who volunteered was permitted to participate in the experiment.

4.2 Study 1

In study 1, a correlational approach was employed to detect a relation between JS from an observer's perspective and attention allocation in favor of just and unjust stimuli.

4.2.1 Overview

At the start of term 2008/ 2009, JS (from all perspectives) was measured with the JS scales during a formally unrelated mass testing procedure. The scales were presented as a unit within a variety of different questionnaires.

Approximately two month later, students were invited to a seemingly unrelated laboratory experiment, ostensibly about concentration issues. The experiment took place in a separate room provided by the University of Koblenz-Landau. Participants underwent the following procedure: Up to six participants at a time were welcomed and asked to take a seat in front of one of the prepared screens. The workstations were separated to minimize the possibility of distraction: Participants couldn't see each other or other screens.

When everybody had put the headphones on (necessary for the priming and preventing distraction by noises), the program started simultaneously on all laptops. Participants were assigned randomly to one of two conditions: One included an unjust film sequence as priming, the other one a neutral sequence (the according film sequences are described below). Then the dot probe task started automatically with 10 practice trials which were followed by the test trials.

A control question (“What do you think is the topic of this study?”) was to be answered after completion of the task, followed by the evaluation of the movie sequence. After entering their personal code and demographic information (sex, age, native tongue) the participants were thanked for their participation and given a certificate. The whole procedure took about 25 minutes.

4.2.2 Priming: the film sequences

As priming served two film sequences which were successfully used before by Hangarter (2001). The scenes were taken from the movie "Witness" (Feldman, 1985), and lasted about 4 minutes each.
Both films start off with some general information about the Amish People, including the fact that they do not defend themselves because of their belief, even when being attacked. The justice-related film then continues with a scene where a group of Amish People are humiliated and scorned by some adolescents who obviously take advantage of the fact that the Amish do not fight back according to their religion. The neutral film continues with a peaceful train ride by an Amish mother and her little son, without any negative interaction with other people.
The unjust sequence meets the criteria of unjust incidents as described in chapter 2.3. According to Mikula (1993), the behavior of the adolescents can be classified as "unfriendly or aggressive", one of his categories of injustice. Moreover, it includes the elements which make us judge an situation as unjust: the entitlement of an innocent victim to go unharmed is violated intentionally and deliberately. Furthermore, it was confirmed by an expert's rating that this situation is to be classified as unjust (Hangarter, 2001).

An evaluation of the film served as manipulation check ("How suitable are the following words to describe the film?"). The scale included justice-related and injustice related adjectives, and words in regards to the entertaining value,[2] which had to be rated on a six-point-rating scale (from 1/ not at all to 6/ perfect).

As persons from the same pool of students were recruited for study 2 as well, full debriefing was delivered by email after the completion of study one *and* study 2, a procedure none of the participant objected against after debriefing.

2 **Justice-related**: *gerecht, fair, richtig, rechtmäßig, verdient*; **injustice-related**: *ungerecht, empörend, beschämend, mitleiderregend, belastend, brutal*, reversed polarity: *friedlich*; **entertaining**: *interessant, spannend, kurzweilig, anregend, rührend, lehrreich,* reversed polarity*: langweilig, langatmig*

4.2.3 Dot probe task

The attentional bias was operationalized by the visual dot probe task. The technical details of the procedure abided closely to the procedure of Mathews and MacLeod et al. (2002) as described in chapter 2.5. The concrete procedure is detailed in the following.

When the movie clip ended, the instructions of the dot probe appeared automatically on the screen. They included a passage to respond as quickly as possible, while not making any errors. According to Fazio (1990) this is appropriate to reduce error variance. To ensure that the instructions were understood correctly, the task started with 10 practice trials (also recommended by Fazio, 1990) which use a set of words with no connection to justice or injustice at all. If a participant pressed the wrong button, the program provided feedback by displaying the text "error" in red letters, 10 mm high.

The subsequent dot probe task consisted of 132 trials identical to the practice trials, except for the absence of error feedback: Each trial starts by displaying a fixation cue (three crosses in a row, each 5 mm high) at the center of the screen. The participants were instructed to concentrate on those crosses. After 500 ms the fixation cue vanishes and two words (both 5 mm high) appear on top of each other, separated by 3 cm. After another 500 ms, both words disappear and one of the words is replaced by a small symbol (a T rotated by 90°), the probe, pointing to the left or to the right. The horizontal position of this probe is randomized but limited to the area the word has covered before. The probe appears randomly in former location of the neutral or the stimulus word. Immediately after the participant has responded by pressing a key, the next trial starts.

All stimuli were displayed in white on a black background, except for the probe itself which is displayed in gray to make identification more difficult. The font *courier new* was used to ensure that words with the same number of letters do also have identical physical length.

In this study 66 fix word pairs were employed, each one displayed twice. Every pair consisted of one stimulus word and a neutral word matched for number of letters, valence and frequency in the German language (see chapter 6 for details of the word selection). The word pool included 38 unjust (e.g. *ungerecht*) and 28 just (e.g. *eingeengt*) stimulus words. A complete word list as well as the wording of the instructions can be found in the appendix B and D, respectively.

4.2.4 Subjects: appropriate sample size

This being the first study applying the dot probe in JS research, effect sizes and required sample sizes were not yet available, thus an attempt was made to enlist a preferably large number of participants – especially, because the effects found by the dot probe are commonly small, and small effects can only be discovered when a large sample is involved.

4.3 Study 2

To avoid problems which come along with quasi-experimental designs, a second study was conducted in order to specify the nature and function of the attentional bias.

4.3.1 Overview

The procedure was very close to the first study: Participants were derived from the same pool of first year students who completed the JS scales at start of term during a mass testing. The lab experiment (again disguised as a study about concentration) took place about 10 weeks afterward. Six workstations were arranged identically to the first study.
The participants were welcomed and asked to take a seat in front of one of the screens. When everybody had put the headphones on, the program started simultaneously on all laptops. It led the participants autonomously through three parts of the experiment: The visual dot probe (training and test trials were not distinguishable for the participants), and subsequently an experimental game and the JS scales. After completion, the participants were thanked for taking part and given a certificate. Then, the experimenter revealed herself to be a member of the Amnesty International university group and asked if the participants would support the group by filling in a questionnaire on an optional basis. The questionnaire covered the willingness of the students to engage in the activieties of the Amnesty International university group. Anonymity was emphasized and underlined by a closed box wherein the completed forms were to be dropped. The whole procedure took about 45 minutes.

The data of the Amnesty International questionnaire was matched after each experimental session as it carried the number of the workstation the participant had occupied. Participants were debriefed by email after the last experimental session had been completed.

4.3.2 Experimental stimuli: word material

A total of 64 word pairs was employed, randomly divided into two subsets, both equal in the average relation of the stimulus words to (in)justice, in valence and in frequency in the German language. Each subset contained 18 injustice-related (e.g. *unfair*) and 14 justice-related (e.g. *rechtmäßig*) stimulus words. They were matched with a neutral word by the number of letters, valence and frequency in the German language (see chapter 6 for details of the word selection).

One subset was used for the training, the other one for the test trials in order to provide unknown stimulus words for the test trials. Random allocation decided for each participant which subset had which role.

4.3.3 Dot probe task: training and testing procedure

The dot probe task (including instructions and practice trials) was computed identically to the first study apart from the exceptions stated here.

Without priming, the program started simultaneously at all work stations displaying the instructions and leading through the practice trials. Then, a total of 512 trials was computed. The first and the last 64 trials were test trials, the remaining 384 assigned training trials. During test trials, each tested word pair was displayed twice, once with the probe appearing behind the target word, once behind the control word. For every subject, each of the eight conditions (probe appearing on top or bottom, behind stimulus or control word, pointing left or right) was balanced, so that every condition appeared eight times during the pretest and the post-test.

Training trials, however, were distinct: The attend justice group found the probe always replacing the justice-related word, while in the avoid justice group the probe always appeared in close vicinity to the control word. Each to be trained word pair was shown a total of twelve times during training trials. Test and training trials were not distinguishable apart from the contingency.

4.3.4 Experimental game

Following the example of MacLeod et al. (2002), a measure of real behavior was included in the experiment, namely an experimental games (cf. chapter 2.2.3). The basic structure of the game employed in study 2 is nearly identical to a design developed (but not yet applied) by Baumert, Fetchenhauer, Schlösser & Schmitt (2007).

The experimental game was presented on the computer screen directly after completion of the dot probe. The participant was informed that there is money (€ 10) to be distributed between 3 persons (him- or herself and ostensibly two other anonymous participants who were not present at the time). Player A, who starts of with 10 €, has to decide if he or she wants to share the money with player B. Player A can give any amount he chooses to player B, who cannot influence the distribution and does not know the identity of player A.

The program created the illusion that the roles in the game were distributed by chance. In fact, every participant was chosen to be player C, the judge. The initial situation was the same for all participants: Player A had decided to keep the whole sum and give nothing to Player B. Confronted with this unjust situation, participants were asked for their emotions. Are they content, annoyed, indifferent or outraged in the situation that is presented?

Afterward, the participant could alter the two amounts independently. He or she could give up to € 10 to Player B (the victim) and/or reduce the sum of Player A (the perpetrator) – even to zero. But there was one condition: For every Euro which is added or subtracted the subject had to give 50 cents from his own amount of money, which is € 10. So, if player C took € 10 from player A and gave € 10 to Player B, he or she had no money left.

To underline the seriousness of the game, students were informed that one "team" (consisting of player A, B and C) will get real money according to their result of the game. The lucky team would be found by lots. To ensure anonymity, no names, but the personal codes of the lottery winners would be published and those students who would recognize their codes could go to the secretary of the department of Differential Psychology, tell the secretary their code, and collect their money. Actually, a randomly picked participant was given 10 Euro, a procedure no participant protested against after debriefing.

This approach yields the same effects as the prospect of every team getting money. Fehr and Schmidt (1999) found no differences between participants playing for a certain amount of money and participants in an experimental design as the one described above, employing a lottery.

The use of the experimental game paradigm is considered appropriate because it can be compared to the stress task of MacLeod et al. (2002, cf. chapter 2.5) regarding the fact that real behavior is measured. Furthermore, it proved successful in the field of JS before (cf. chapter 2.2.3). Hence, if the training has an effect on behavior, it is very likely to influence the results of the experimental game.

The unjust situation is defined very clearly in this setting: According to the principle of equity and parity the distribution is unjust and the behavior of the perpetrator (that is, person A) can be classified as selfish, one of the categories of injustice found by Mikula (1993). The event also meets the criteria of an unjust situation: person B is entitled to an equal share, a right which is violated intentionally and purposefully by A. There is no information available as to justify A's behavior (cf. chapter 2.3).

Measureing emotions in the experimental game

In line with the claim of Fetchenhauer et al. (2004), an emotional measure was introduced in the experimental game with the intention to shed light on the processes leading to a certain behavior. That is, if training groups differ in their emotions but not their reaction, in both or the other way round, different lines of thinking, of explanations and future research emerge.

To measure the emotional reaction, participants were asked the following question: “How content are you with the distribution?”. Responses to three items (annoyed, indifferent and outraged, respectively) had to be given on a Likert scale, from 1 “not at all” to 6 “very much”. Such a method (by questionnaire) is considered well-suited to the study of emotions (Scherer, Wallbott & Summerfield, 1986). Even though the method has its drawbacks such as response distortion or the influence of stereotypes on responses (that is, people are not reporting how they feel but how they think most people would feel in a given situation), this method “is the only alternative for assessing those aspects of the emotional response that are related to

subjective experience, that is the feeling component itself and the subjective impression of the expressive and physiological reactions" (p.21).

4.3.5 Amnesty International Questionnaire (AIQ)

The main idea of the Amnesty International questionnaire (AIQ) was to enhance ecological validity of the experiment, as JS scales and experimental game might lack proximity to everyday life. The questionnaire asks for the disposition to act in favor of the disadvantaged which is associated with the JS correlate *inclination to reestablish justice* (cf. chapter 2.2.3).

Overview of the procedure

The AIQ was presented at the very end of the experiment. The participants were told that the official part was over now and they were free to leave but that the Amnesty International student group at the University of Koblenz-Landau is in need for support and would be very grateful if the participants complete yet another questionnaire on optional basis. The questionnaire was signed with 'Amnesty International Hochschulgruppe Landau' and had the original logo on it (by courtesy of the Amnesty International university group). To conceal the connection to the previous experiment even more, the questionnaire was given as a paper and pencil version whereas the computer program had executed the first part of the study.

Development and description of the AIQ

The questionnaire starts with a short introduction, explaining that its aim is to gather information for the student's group of Amnesty International in Landau. Ostensibly, the group wants to find out how to motivate more students to get involved with the work for human rights and assist events presented by Amnesty International. Three examples of the organization's work are given: The first case (titled "report of success") is about the release of a female Vietnamese advocate, who was institutionalized against her will and without medicinal foundation in a psychiatry in her country. The note reveals that she had provided advise to a prohibited organization of dissidents and appeared for poor families whose properties were confiscated by the government, thus her institutionalization was clearly arbitrarily and politically motivated.

Two more notes under the heading of "here we must act" tell the story of a Chinese journalist who was convicted to 10 years of jail for the government-critical content of an email and a female journalist from Teheran, who fought for women's rights and freedom of opinion. Both were imprisoned in their respective countries at that time. All descriptions correspond to real cases of Amnesty International at the time (Amnesty International, 2007).

Below, some distractor items and the actual questionnaire were presented. Among the 17 items were questions as "I personally would be willing to sign a petition when amnesty international collects signatures", "I personally would be willing to visit an exhibition or reading of amnesty international (entrance fee below 5€)" and "I personally would be willing to distribute flyer and hang up posters for amnesty international". The items were to be answered on a 4-point rating scale, ranging from 1 = "not at all" to 4 = "definitely". The questionnaire included a control question ("What do you think is the purpose of this questionnaire?").

Theoretical base of the examples of injustice presented in the AIQ

The examples of injustice which are given in the questionnaire deal with persons who are either imprisoned or institutionalized without legal reason by their government with the obvious purpose of stopping them from what they were doing: fighting for human rights. Such situations will likely be judged as unjust because the government deliberately violates an entitlement (the right of freedom and freedom of expression) without legal cause or justification (cf. chapter 2.3). Injustice is underlined by the fact that the very victims were fighting for more justice in their country. Moreover, Mikula (1986, p.107) stated "ruthless or illegal misuses of one's high status and power" as an event that elicits the experience of injustice.

The classification of unjust events published by Mikula (1993) and confirmed by Clayton (1992; cf. chapter 2.3) was extracted from student's descriptions of what they personally had encountered. The everyday experience of injustice reported by students will likely differ from such grave cases as described in the questionnaires. Yet still, "arbitrariness of office-holders and official authority figures" is one of Mikula's eight categories, thus supporting the view that the situations described in the questionnaire would indeed be considered unjust. Clayton (1992) found that unjustified accusations and unfair punishment are generally considered unjust and

that the perpetrator has a higher power status in the majority of events reported in public settings. Again, this is an indicator for the appropriateness of the chosen examples.

The example of successful intervention by Amnesty International was included to enhance the effectiveness of Amnesty International's actions and to prevent a feeling of resignation which might in itself impair any kind of action to reestablish justice.

Participants can look upon the questionnaire from a neutral observer's point of view or feel privileged comparing their situation to the ones described. Any of these perspectives should motivate actions to end the perceived injustice or make up for it by challenging the one who is responsible to reestablish justice – in this case by supporting actions of Amnesty International. Schmitt (1998) used self-report methods to investigate this relation and found that persons high in JS_{obs} and JS_{ben} are more likely to show solidarity with less fortunate persons. This was confirmed for JS_{ben} from Gollwitzer et al. (2005). Montada et al. (1989) used similar items as in the AIQ to measure readiness to make pro-social commitments and found an association with moral outrage and anger.

The usual procedure of testing the questionnaire beforehand with an independent sample could not be realized due to restrictions of time and sample. However, this is recommended for further studies.

The above presented arguments suggest that JS is an important factor when people observe or benefit passively from injustice and that the effect can be measured by a self-report instrument like the presented AIQ.
In this study, the inclination to act in favor of disadvantaged persons (and hereby reestablish justice), namely the willingness to engage in the Amnesty International university group, serves as dependent variable to provide evidence that a training of the attentional bias can cause an effect in a seemingly unrelated self report questionnaire with higher external validity than the preceding experimental procedure.

4.3.6 Summary of variables

This is an overview of all variables used in study 2 in chronological order:

Covariate:	JS scores from an unrelated pretest[3]
Independent variable:	Attentional training employing the dot probe
Dependent variables:	Dot probe latencies
	Emotional reaction in the experimental game
	Behavioral reactions in the experimental game
	JS
	Inclination to reestablish justice (AIQ)

3 Annotation: JS scores from the pretest were included only after the experiment to test some post hoc hypotheses. However, they were not part of the hypotheses.

5 Preliminary notes in regards to statistical tests

The following analyses were computed with the program SPSS 15.0 if not said otherwise in the text. Reported p-values are results of two-tailed tests, exceptions are indicated.

The validity of statistical tests is based on certain assumptions. If these are violated, it has to be considered which way the result of a specific test is affected. Therefore, wherever possible the assumptions of the statistical tests applied in this chapter were tested empirically. In the interest of improving readability, all tests of assumptions which were applied repeatedly will be listed here. In the empirical part of the paper, the violation but not the fulfillment of assumptions will be reported.

For bivariate correlations, both variables are to have a bivariate normal distribution. This is, however, rarely tested in practice (Nachtigall & Wirtz, 2002). It is recommended to test if the singular variables are normally distributed, a necessary (but not sufficient) condition for bivariate normal distribution. Nachtigall et al. (2002) recommend the Shapiro-Wilk test for samples smaller than N = 50, and the Kolmogoroff-Smirnoff-Test for samples with N > 50.

The analysis of variance requires according to Bortz (1999) the normality of residuals. So, the according histograms were checked and the Shapiro-Wilk test was applied, recommended for sample sizes below 50 by Nachtigall et al. (2002).

Normality of residuals is also an assumption for multiple regression analyses (Backhaus, Erichson, Plinke & Weiber, 2006) and was tested as well. Furthermore, homoscedasticity of residuals is required. To detect heteroscedasticity, the unstandardized residuals were plotted in turn against the independent variable and the predicted value.

6 Preliminary studies to select word material

To maintain a clear structure while reporting all necessary details, this chapter is dedicated completely to the procedures used to select the word material employed in study 1 and 2, rather than putting it under the topic of method in study 1.

6.1 Word study 1: association to justice and injustice

Justice and injustice related words were selected on basis of a word rating done by experts. The judges were psychology students, who had at least passed the intermediate examination and staff members of the psychological unit of the University of Koblenz-Landau.
Most of the initial word pool (consisting of 222 adjectives and verbs) derived from Hangarter (2001) and a few words were added from Hafer (2000). Nouns were not considered because of the capital letters in German – the aim was a word pool as homogeneous as possible. The questionnaire for rating the association to justice and injustice is based on Hangarter's questionnaire (2001) as well. All words were to be rated on a 4-point scale (see appendix A for the complete questionnaire):

1. absolutely no relation to justice or injustice
2. usually no relation to justice or injustice, but under certain (rare) circumstances a relation is imaginable
3. the word has a meaning which is connected to justice or injustice
4. The word is definitely and closely related to justice or injustice
5. I don't know this word

Results
A total of 222 words was rated by 17 judges. Based on the rating a final set of 66 (in)justice related words was selected by median (three and four). It should be noted that the inter-rater reliability was low (Krippendorff's alpha = .270), a fact which will be analyzed in detail in the discussion.

6.2 Word study 2: valence and frequency of the words

Justice-sensitive persons do not have a general negative bias, but one for just and unjust information. To control for the emotional content, the 66 justice related words were rated again regarding their valence. This rating was done by 25 judges, including students and scientific assistants of different areas such as psychology, biology and informatics. Schwibbe, Räder, Schwibbe, Borchardt & Geiken-Pophanken (1994) provided a convenient questionnaire which was slightly adapted for present purposes (appendix A). The inter-rater reliability for the valence rating (Krippendorff's alpha = .440) is remarkably higher than for the relation to (in)justice, indicating that the valence of the words is less in question than their association to justice or injustice.

The findings for valence are confirmed by word lists which were normalized by large samples. In detail, the valence values were compared to the findings of Schwibbe et al. (1994), Heydecke (1984, as cited in in Hager & Hasselhorn, 1994), and Ostendorf (1994), all of which can be found summarized in Hager and Hasselhorn (1994). Their outcomes in regards to the valence of the words correlate highly and significantly with own results ($r = .96$, $p < .01$), a finding which is based on 22 words for which results from both sources, the studies named above and the own study were available.

Stimulus and control words were matched in terms of length and valence, the valence values of the control words were once more provided by Hager et al. (1994). For each stimulus word a control word was found with the same number of letters and about the same valence. During the matching procedure it was checked that stimuli and controls wouldn't differ too greatly in their frequency in the German language. A similar procedure was successfully employed by MacLeod et al. (2002). The frequencies in written German language were provided by the database of the Leipzig Corpora Collection (http://wortschatz.uni-leipzig.de/abfrage, retrieved November 10th, 2007). More information about the Leipzig Corpora Collection is available in Biemann, Heyer, Quasthoff & Richter (2007). For characteristics of singular stimulus and control words see appendix B.

6.3 Summary: characteristics of the word material

There are slight differences between the two word pools used in study 1 and study 2 because after the discussion of study 1 in the colloquium two word pairs were excluded completely and four control words were replaced for theoretical reasons (concerned words are marked in appendix B). As the two word pools are nearly identical in regards to their characteristics reported here, table 1 contains the values obtained for the total of words used in study 1 and 2.

Table 1: Word material – relation to (in)justice, valence and frequency

word category		relation to (in)justice		valence		frequency	
	N	*M*	*SD*	*M*	*SD*	*M*	*SD*
stimulus (unjust)	38	2.99	0.84	-1.98	0.82	696	1986
control (negative)	38	-	-	-1.88	0.99	246	580
stimulus (just)	28	2.90	0.79	1.52	0.93	2754	7424
control (positive)	28	-	-	1.58	0.97	1852	6128

Note. Means (*M)* and standard deviations (*SD*) of the relation to (in)justice, valence and frequency in the German language (frequency). For the control words, no data concerning the relation to (in)justice is available (-). The relation to (in)justice was measured by a 4-point rating scale, valence by a 6-point rating scale.

In order to rule out alternative explanations, it is important that stimulus and control words differ maximal in respect to their relation to justice and injustice and minimal in other dimensions as valence and frequency. The mean valence of stimulus and control words is nearly identical as would be expected because of the selection procedure. Although at first sight frequency seems to differ considerably, a *t*-test for independent samples shows not even marginally significant differences for target words compared to equally valenced control words neither for just versus positive words ($t = -.50$, $df = 55$, $p = .62$) nor for unjust versus negative words ($t = -1.42$, $df = 79$, $p = .16$). Apparently the differences displayed in table 1 are due to four outliers (two associated to justice, one associated to injustice, one neutral), which have extraordinarily high frequencies of more than twice the maximal value of the other words and account for the large standard deviation as well.

One goal of the second study is to show that the learned bias is generalized to unknown stimuli, therefore the word pairs were divided randomly in two subsets, each consisting of 32 pairs. The word pairs of the two subsets do not differ concerning their relation to (in)justice (t = - 1,50, df = 62, p = .14), valence (t =.97 , df = 126, p = .34) or frequency (t = - .37, df = 126, p = .71).

6.4 Discussion and future prospects

Due to the procedure and the time frame, the association to justice and injustice is not known for the control words. However, the words were discussed with other psychologists and psychology students to ensure that they are not related to the domain of justice. Still, this cannot replace empirical evidence, and an additional rating of all words in regard to (in)justice and valence is recommended for future studies.

New ratings seem also advisable as some of the studies providing valence values are rather old, and the connotation of words may have changed over time. Still, the fact that valence values of former studies do not differ significantly from the recent one is a hint as to the credibility of the results. But naturally, this argumentation is tautological and can only be solved by additional, independent studies. Future studies about word norms should also include information about the raters (as to their gender and age, for example) to strengthen validity of the results. Unfortunately, this information is not available for the present study.

Also, other characteristics of the words like abstractness and other, unknown qualities might influence the outcomes of the dot probe experiment. For example, words which evoke a picture or a feeling immediately might attract more attention compared to words which don't. A confoundation of word qualities cannot be ruled out completely on basis of the present data, and should be subject to new studies to clarify the relation between word qualities as connection to justice and injustice, abstractness etc. on one hand and their relation to attention on the other hand.

Finally, experts who rated whether the words are related to justice or injustice indicated the difficulty to treat the relation to both, justice and injustice, as one single dimension. The considerable variability between the raters probably mirrors the complexity of the topic. Consequently, the inter-rater reliability can possibly be enhanced by separating the words beforehand by valence, and ask for the relation to

justice of the positive words and the relation to injustice concerning the negative words.

Despite its character as a pilot study, the procedure of selecting words is based on established means and a rather large pool of raters. Thus, the resulting words are considered appropriate for present purposes.

7 Results Study 1

In the first study to be presented here, a correlational relation between JS_{obs} and an attentional bias toward unjust and just stimuli was tested. The according hypothesis (hypothesis 1) stated: A correlation exists between JS_{obs} and an attentional bias toward just words (contrasted with positive words) and unjust words (contrasted with negative words), but only when injustice-related concepts have been activated before by a priming.

7.1 Summary of results

Considering the bias for justice-related words, no effect of observed injustice or JS_{obs} could be found. In contrast, JS_{obs} scores, the priming condition and their interaction did influence a bias toward unjust words: Persons high in JS_{obs}, who had watched an unjust scene in the priming (activating their justice-related concepts), focused more on injustice than persons low in JS_{obs} or participants in the neutral priming condition. However, the dot probe task proved to be unreliable, regardless of which way latency outliers were deleted, which impairs the validity of the results.

7.2 Description of the sample

In total, 54 students participated in this study. For five subjects no matching data from the mass testing was provided, their data was not considered. Four students had a first language other than German and were excluded from the analysis as well (cf. Hangarter, 2001). Two more cases were excluded because of an error rate of more than 20 % of the trials, indicating a lack of understanding or motivation. According to the control question and interviews after the experiment, no participant guessed the topic of the study. Consequently, 43 valid cases remain in the final data set.

Details of the sample, separated for the priming groups, are provided in table 2. Due to random assignment to the groups, mean age differs significantly between the groups according to a *t*-test for independent measures.

Table 2: Characteristics of participants in study 1, separated for the training groups: proportion of females, age and Justice Sensitivity observer (JS_{obs})

priming condition	*N*	females	Age		JS_{obs}	
			M	*SD*	*M*	*SD*
neutral	23	73 %	22	3.89	3.10	0.65
unjust	20	85 %	20	1.11	2.96	0.70

Note. Sample Size (*N*), proportion of females (*females.*), means (*M*), standard deviations (*SD*), minimum value (*Min*), maximum value (*Max*). Difference in age is significant ($t = 2.13$, $p < .05$), difference in JS_{obs} is not significant ($t = 0.72$, $p = .47$).

7.3 Characteristics of the Justice Sensitivity observer scale

For the present sample, the characteristics of the JS_{obs} scale are shown in table 3. Cronbach's alpha is high ($\alpha = .822$), confirming findings of previous studies with this questionnaire (Schmitt et al., 2005).

Table 3: Characteristics of the scale of Justice Sensitivity observer (JS_{obs})

	N	*M*	*SD*	α	*MIC*	discriminative power
JS_{obs}	10	3.04	0.67	.82	.32	$.21 < r_{it} < .63$

Note. Number of items (*N*), mean (*M*), standard deviation (*SD*), Cronbach's α (internal consistency), mean inter-item correlations within scales (*MIC*) and discriminative power of items ($N = 43$).

7.4 Manipulation check

A short scale for evaluating the film content served as manipulation check. An independent two-sample *t*-test showed that – as intended – the two priming groups did not differ concerning the entertainment value of the movie sequences, but that the neutral priming was rated as significantly more just and less unjust than the unjust film sequence (see table 4)[4]. In conclusion, the manipulation can be considered successful.

4 The just scale fails one of the assumptions for a *t*-test: homogeneity of variances, thus, the corrected test statistic is reported. All three scales can be considered reliable with a Cronbach's α above 0,76.

Table 4: Results of the evaluation of the priming film sequences and the evaluation scales

scale			neutral priming		unjust priming			
	N_{it}	α	*M*	*SD*	*M*	*SD*	*t*	*p*
entertaining	8	0.76	3.41	0.93	3.59	0.91	- 0.74	.46
just	5	0.85	3.01	1.18	2.27	0.66	2.89	**< .01**
unjust	7	0.93	1.78	0.96	3.65	0.73	- 8.00	**< .01**

Note. Cronbach's α (internal consistency), number of items (N_{it}), means (*M*), standard deviations (*SD*), test statistic (*t*). Significant differences between priming groups ($p < .05$) are in **bold** (N = 43).

7.5 Dot probe task: calculation of the speeding index

To simplify analyses and comprehension of results, an index of difference was computed for each participant with the following equation (equation 1):

$$\text{Speeding} = \frac{(\text{control top} - \text{stimulus top}) + (\text{control bottom} - \text{stimulus bottom})}{2} \quad (1)$$

Put into words: The latencies of trials, where the (in)justice related word and the probe appear on the upper side of the screen (stimulus top) are subtracted from those where the control word and the probe appear on top (control top). The same procedure is applied to trials with the probe on the lower side of the screen. In a last step, the mean is calculated. This calculation of a speeding index derives from MacLeod et al. (1988, S.664).

The speeding index is positive when the participant shows a bias toward justice or injustice, respectively. If he or she tends to avoid justice or injustice the index will become negative. An index close to zero indicates non-biased attention. The index was computed separately for just ($speeding_{just}$) and unjust word pairs ($speeding_{unjust}$).

7.6 Dot probe task: outliers and reliability

In the first instance, all latencies for incorrect responses were excluded from the analyses (in total 3,1 %, individual range: 0 % to 10 %), a procedure recommended by Fazio (1990, p.86). In a second step, outliers were trimmed by five different methods. For the total of six resulting data sets, the speeding index was calculated to gain two

scores for each subject: one for biased attention regarding to just ($speeding_{just}$) and one for unjust stimuli ($speeding_{unjust}$). In a last step, the split-half reliability was calculated for each of the six data sets.

Dealing with outliers in reaction time data

Borkenau and Mauer (2007) gave an accurate statement about reaction time outliers: "These atypical responses strongly influence the individuals means but reflect cognitive processes different from those reflected by the participant's more typical responses. Disregarding such outliers should therefore result in latencies that measure the processes under study more precisely" (p.171).

Reaction time outliers are a special issue. Whenever participants are motivated and cooperative, short outliers will hardly occur, and the accuracy of the ones that do occur is usually at chance (Ratcliff, 1993). In the present study, wrong answers in the dot probe task were excluded from the data before analysis, so about half of this type of outliers are left out in the outset. Moreover, short reaction time outliers can't fall below zero milliseconds while long reaction time outliers are not limited and therefore will usually affect the data to a greater extend. For this reason, only a trimming of the long reaction time outliers was undertaken. Different methods of trimming the data were applied, and the resulting reliability was used as criterion to assess the effect.

- ***Method 1***: Outliers above a cut-off value of two standard deviations above the general mean are deleted (Schmukle, 2005; Mogg et al., 1995).
- ***Method 2***: Outliers above a cut-off value of one and a half standard deviations above the general mean are deleted.
- ***Method 3***: Each participants 10 % slowest responses is disregarded (Borkenau et al., 2007).
- ***Method 4***: Outliers greater than the *individual* mean plus two individual standard deviations are excluded.
- ***Method 5***: Outliers greater than the *individual* mean plus one and a half individual standard deviations are excluded. Method 4 and method 5 both follow Ratcliff (1993), who recommended a cutoff based on individual subject standard deviations if there are large differences among subjects and the effect is small.

Schmukle (2005) questions the practice not to report reliability coefficients of reaction time based response measures and reports evidence that reliability is often very low – or nonexistent. Meeting the claim of Schmukle, a detailed analysis of reliability was conducted. Moreover, reliability served as a criterion in order to find the best practice to delete outliers. Of course, this method is explorative and might only serve to provide grounds for developing hypotheses. It is not appropriate to draw final conclusions on the best practice to delete outliers, since no hypotheses have been formulated prior to the experiment. Reliability is operationalized as correlation between test halves.[5]

In table 5, resulting number of deleted trials, means and standard deviation can be found for the data trimmed by the mentioned five methods respectively. The split-half reliability was computed for each of the resulting data sets. It is obvious at first glance that reliability is virtually nonexistent.

Table 5: Reliability of the dot probe task after different treatment of outliers

Method	Descriptives			Split-half reliability	
	deleted trials	*M*	*SD*	$speeding_{unjust}$	$speeding_{just}$
No elimination	-	553	117	.26	**- .35**
1) Cut-off at *M* + 2 *SD*	3.5 %	526	71	- .14	.03
2) Cut-off at *M* + 1.5 *SD*	6.1 %	518	64	.03	- .16
3) Cut-off individual slowest 10 %	10.0 %	532	82	- .04	- .08
4) Cut-off at individual *M* + 2 *SD*	3.6 %	542	92	- .07	.03
5) Cut-off at individual *M* + 1.5 *SD*	6.7 %	537	88	- .10	- .04

Note. Means (*M*) and standard deviations (*SD*) in milliseconds. Split-half reliability computed separately for speeding toward unjust stimulus words ($speeding_{unjust}$) and speeding toward just stimulus words ($speeding_{just}$). Significant correlations ($p < .05$) between test halves (Split-Half Reliability, $r_{t1,t2}$) are in **bold**. $N = 43$.

5 Assumptions of correlations: In general, the variables display a sufficient normal distribution ($p > .05$, N = 43), but there are three exceptions among 24 tested variables: After excluding outliers according to method 4 and 5 (cf. p.62) $Speeding_{just}$ (first test half) differed significantly from normal distribution ($p < .01$). Still, regarding the consistent finding of low and mostly even negative correlations, this violation of the assumptions can be neglected.

Neither method had a noteworthy effect on the resulting reliability (nor the outcomes of the study). Since the statistics do not provide the grounds for a decision concerning reaction time outliers, this decision will be made for theoretical reasons.

The first two methods, using one general cutoff value for all participants, have a common disadvantage: They don't differentiate between participants, consequently, the real reactions of slow participants will be trimmed while the outliers of fast participants are not touched at all (Schmukle, 2005). Furthermore, the individual differences in question decrease.

The third method assumes that the slowest 10 % of the answers of each person do not carry useful information. This fixed (and rather high) threshold might be doubted, particularly if participants are cooperative and motivated.

The fourth method is not satisfactory, because participants with large standard deviations keep large outliers. This is improved when method 5 is applied. For these reasons, the following analyses are based on data adjusted according to the fifth method: Eliminating all Outliers above an individual threshold consisting of the individual mean plus 1,5 standard deviations.[6]

6 The regression model was tested for all different speeding indexes obtained after eliminating outliers. Except for the original data sets containing all outliers, all methods produced essentially identical results. Data may be requested from the author.

7.7 Dot probe task: description of the data without outliers

Table 6 gives an overview of the raw dot probe latencies after outliers were deleted according to the former chapter, as well as the speeding toward just and unjust stimuli.

Table 6: Mean probe detection latencies for target and control words, and speeding toward unjust ($speeding_{unjust}$) and just ($speeding_{just}$) words, separated for priming condition.

	neutral priming		unjust priming	
	M	*SD*	*M*	*SD*
unjust word pairs				
target probe	544	97	528	78
control probe	541	92	531	77
just word pairs				
target probe	546	96	536	79
control probe	546	97	522	46
$Speeding_{unjust}$	-3	13	0	16
$Speeding_{just}$	2	18	-10	16

Note. Means (*M*) and standard deviations (*SD*) in milliseconds, *N* = 43.

The striking difference in mean latency between priming groups (minimal 10 ms and maximal 24 ms) can plausibly be attributed to the difference in age. Concerning the speeding index, the differences between priming groups are inconspicuous, indicating that observing an unjust incident does not produce a bias toward just or unjust words independent from JS.

7.8 Test of hypothesis 1

Hypothesis 1 proposed a correlation of JS_{obs} and and attentional bias toward (in)justice, which is represented by the speeding index. To test this hypothesis, JS_{obs} was z-standardized and the priming was dummy coded (0 = neutral priming, 1 = unjust priming), in line with the recommendations of Aiken & West (1998) for interactions involving a categorical and a continuous variable. Then, JS_{obs}, priming condition and the interaction term JS_{obs} x priming were entered simultaneously as

predictors into the regression equation. As criterion served consecutively $speeding_{just}$ and $speeding_{unjust}$.

Hypothesis 1a: $speeding_{just}$

In regards to $speeding_{just}$ as criterion, the model explained 12 % of the variance of speeding toward just words but was not significant (R^2 = .12, R^2 adjusted=.06, $F(3,39)$ = 1.81, p = .16). The main effect of the priming was significant (β = -.34, t = -2.27, p < .05), but neither the main effect of JS_{obs} (β = .07, t = .35, p = .73), nor the JS_{obs} x priming interaction (β = -.11, t = -.55, p = .59) were significant.[7] The effect size was calculated with the software G*Power (Faul et al., 1992). The effect of JS_{obs}, priming and their interaction on $speeding_{just}$ was small, as the data had already suggested (df =2,40, f^2 = 0,14, power = 0.55).

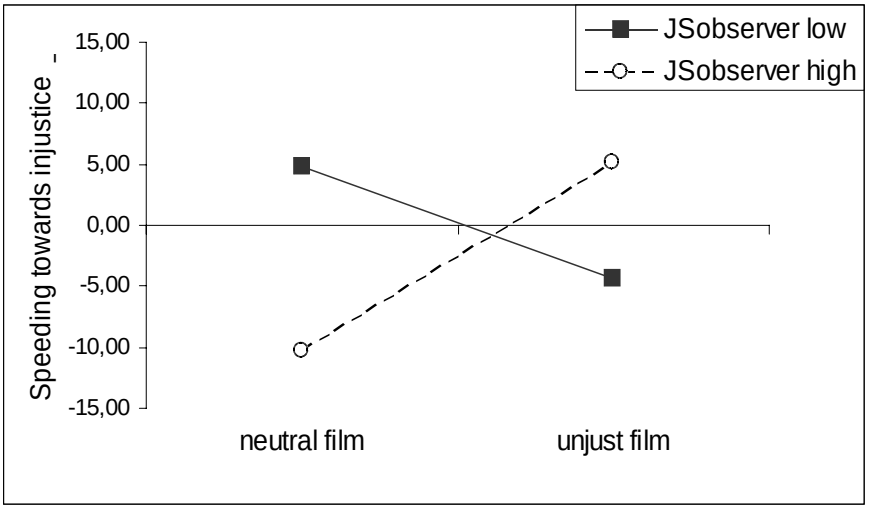
In summary, these results suggest that there is no relation between JS_{obs} and a bias toward justice-related stimuli, but rather hat persons avoid justice related stimuli after observing injustice - independent of their JS score.

Hypothesis 1b: $speeding_{unjust}$

Results concerning $speeding_{unjust}$ as criterion were more convenient. The model explained 21 % of the variance of speeding toward unjust words and reached significance (R^2 = .21, R^2 adjusted=.15, $F(3,39)$ = 1.81; p < .05). Interestingly, concerning the speeding toward unjust stimuli there was no significant main effect of the priming condition (β = .12, t = .79, p = .44). Instead, there was a significant main effect of JS_{obs} (β = -.53, t = -2,70, p < .05) as well as a significant JS_{obs} x priming interaction (β = -.11, t = -.55, p = .59). The results are displayed in figure 1.

7 By inspection of the histograms of the residuals, this assumption of normality of residuals is roughly met , but according to a Shapiro-Wilk test the residuals differ significantly from a normal distribution (p < .05). As a result of this violation, significance might be underestimated, but not the estimation of regression coefficients (Cohen, Cohen, West & Aiken, 2003).

Figure 1: Interaction between Justice Sensitivity observer and priming in regards to the speeding toward injustice



Note. Speeding in milliseconds.

The effect size, again computed with G*Power, reached $f^2 = 0.27$ (power = 0.84) and ranges between a moderate (0.15) and a large effect (0.35) according to Bortz et al. (2006,).

In conclusion, hypothesis 1 is partly supported by the data: There is a relation between JS_{obs} and an attentional bias for unjust stimuli, when injustice-related concepts are activated. No such relation was found in regards to just stimuli.

7.9 Discussion of study 1

The goal of study 1 was to reveal a correlational connection between JS_{obs} and an attentional bias toward justice and injustice. This connection is partly confirmed: The higher a person scores in JS_{obs}, the more he or she displays a bias toward unjust stimuli after witnessing an unjust incident. No such effect on JS_{obs} emerges in regards to just stimuli.

Unfortunately, there is one serious flaw to the present findings: the lacking reliability of the dot probe task, that is of the calculated speeding index. Without reliability, these findings can be considered no more than a first small hint in the indicated direction and all findings should be treated as preliminary, because the low reliability forbids extensive interpretations.

Two explanations of the finding of a bias toward injustice-related (and not justice-related) stimuli are plausible: First, observing injustice (as was done in the unjust priming condition) might only activate concepts related to injustice and not to justice. Second, JS_{obs} might exclusively be related to a bias concerning unjust (and not just) stimuli.

Every priming – or other manipulation – raises the question whether the target variables were influenced in the intended way and which other variables might have been manipulated unwittingly. In the present study, one critical question deals with the effect of the unjust film sequence. Did it activate justice *and* injustice-related domains? Did it activate the domain of injustice only? Or did it serve as a mere valence priming of negative and unpleasant feelings? The last possibility can likely be ruled out, as participants high in JS did show a bias toward unjust stimuli, even though those stimuli were presented along with a negative control word matched for valence.

The unjust movie was rated by participants as more unjust and less just as the neutral priming, clearly another hint that the content was was perceived as unjust. The film may have activated injustice related concepts exclusively and therefore, in spite of the findings, the bias of persons high in JS_{obs} may extend to just words compared to positive control words – when justice-related concepts are activated as well. This point remains for future studies to explore, for example by including a neutral, an unjust and a just priming in a replication of this study. Such primings have been applied successfully in research to the interpretation bias associated with JS: In the study of Baumert et al. (2009), one priming condition included an unjust situation which was resolved fairly to prime justice. This procedure probably activates justice-related concepts, a hypothesis which can very well be tested by means of the dot probe task because an attentional bias toward justice and injustice can be differentiated.

Such an experiment would also reveal whether the attentional bias covers unjust stimuli exclusively. Theoretical and empirical support for this view will be analyzed in the general discussion.

The finding of a bias toward unjust words is support for the construct validity of JS_{obs}. Valence and frequency of the used word pairs were matched and although they might differ in another dimension, this alternative explanation seems rather far-fetched. The most salient explanation of the present findings is that persons who are

sensitive to justice draw their attention toward unjust stimuli, when their injustice-related concepts have been activated. But, as said above, the lacking reliability is a serious drawback to all conclusions.

A positive effect on intern validity is due to the long period of time between the measurement of JS_{obs} and the experiment. This prevents one kind of experimental demand effects and artificial consistency, because the participants were very unlikely to draw a connection between those two incidents or remember their answers given in the mass testing six weeks ago, especially because the scales were presented among a variety of other questionnaires. As first-year students are obliged to take part in a great number of experiments and studies involving questionnaires as part of their training, it is highly unlikely that the bias is due to demand effects and not a single participant guessed the topic of the study.

As a matter of course, the external validity is not satisfactory. First, the sample of first-year psychology students is not representative and second, the low reliability forbids extensive generalization. Moreover, the dot probe task, although a well established measurement instrument, is a lab experiment. This means that the situation is arbitrary, clearly structured and standardized and thus far from a natural environment. Still, the low external validity was accepted to maximize the control of experimental variables, a compromise which is often necessary in scientific environment.

8 Results study 2

8.1 Empirical hypotheses

Study 2 aims at establishing attentional processes as a cause for interindividual differences when a person observes injustice. It is proposed that attention toward (in)justice-related information can be influenced by training, depending on the training condition either activating or deactivating (in)justice-related concepts, affecting subsequent emotions and reactions to injustice. These assumptions will be specified in the following hypotheses.

The experiment includes two training conditions. Participants who are trained to focus their attention to justice and injustice are referred to as *attend (in)justice group*, participants trained away from such stimuli will be called *avoid (in)justice group*.

Hypothesis 2: effect on response latencies

Hypothesis 2.1: Compared to the baseline measured before the training, participants trained to pay attention to (un)just stimuli will react faster if a stimulus appears in close vicinity to a justice-related word than if it appears close to the neutral word and vice versa for the other group.

Hypothesis 2.2: Compared to the baseline measured before the training, participants trained to pay attention to (un)just stimuli will react faster if a stimulus appears in close vicinity to an *in*justice-related word than if it appears close to the neutral word and vice versa for the other group.

Hypothesis 3: effect on the intensity of emotions (exp. game)

Persons trained to pay attention to (in)justice experience more pronounced anger and moral outrage when confronted with an unjust incident than persons trained to avoid (in)justice.

Hypothesis 4: effect on real behavior (experimental game)

Persons trained to pay attention to (in)justice sacrifice more of their own resources to reestablish justice by compensating the victim or punishing the perpetrator than persons trained to avoid (in)justice.

Hypothesis 5: effect on JS

Hypothesis 5.1: The level of sensitivity toward (in)justice (after being exposed to injustice) depends on the perceived training: The attend (in)justice group displays higher levels of JS_{obs} than the avoid (in)justice group.

Hypothesis 5.2: The scores of JS_{vic} and JS_{ben} do not differ between the training groups.

Hypothesis 6: Effect on the willingness to act

Persons trained to pay attention to (in)justice have a stronger inclination to act against injustice than persons trained to avoid (in)justice: the former are more willing than the latter to actively engage with Amnesty International by signing petitions and contributing their time or money.

8.2 Subjects: appropriate sample size

Based on the findings of study 1, the appropriate sample size for study 2 was calculated. The effect size of the speeding toward unjust words found in study 1 is located exactly in the middle between a moderate and a large effect (0.35) according to Bortz & Döring (2006). The according effect size for a *t*-test for independent measures (as employed in study 2) is 0.65. This effect size, the found power (0.838) and an α of 0.05 were entered in the program G*Power (Faul, Erdfelder, Lang & Buchner, 2007). It produced a required sample size of N = 86. However, this calculation assumes ideal conditions and quite a large effect, so the number of needed participants is most likely higher. Due to time and cost restrictions, such a big sample could not be realized, which should be kept in mind when considering the results.

8.3 Analysis of the data and results (study 2)

8.3.1 Summary of results

Concerning the to-be-tested hypotheses, it was not possible to replicate the findings in Anxiety Vulnerability. The dot probe proved unreliable as a measurement instrument and did not succeed in inducing an attentional bias as expected. After the training, the groups did not differ as expected in respect to their emotions and reactions toward an unfair distribution, their JS scores after being confronted with injustice, or their inclination to reestablish justice.

Post hoc analyses showed that JS scores of an independent session 10 weeks before the experiment – referred to in the following as JS (t1) – did not correlate with an attentional bias for just or unjust stimuli which was measured before the training, and predicted reasonably well the inclination to reestablish justice but this effect was not moderated by the attentional training condition. Instead, the training had an additional effect: A training toward injustice produced higher willingness to reestablish justice, when entered into the regression equation together with $JS_{obs}(t1)$. Unexpectedly, emotional and behavioral reactions in the experimental game were largely independent of the original JS scores.

8.3.2 Description of the sample

Sixty introductory psychology students who had no knowledge of the research topic, volunteered to participate in this study. One participant refused to complete the Amnesty International questionnaire. One subject was excluded completely from the analyses because less than 80 % (less than 51 from 64) of the post-test trials were correct. As the concentrated completion of the training is considered necessary to produce a bias, this data is not further considered. Five Participants had to be excluded because they have another first language than German. One Participant did not complete the experiment and was excluded as well. Thus, the hypotheses are tested based on **53 subjects**, who were randomly allocated to the two experimental conditions (training groups)[8], the characteristics of the sample are shown in table 7).

8 Nearly half of the participants (45 %) had taken part in study 1. Of these 24 participants, 11 had seen the neutral film and 13 had seen the film clip related to injustice. Participants who had seen

Table 7: Characteristics of participants in study 2, separated for the training condition. Proportion of females and age

training condition	N	females	Age			
			M	*SD*	*Min*	*Max*
avoid justice	25	84 %	21.24	3.32	18	32
attend justice	28	82 %	21.82	2.96	19	30

Note. Sample Size (*N*), proportion of females (*females*), means (*M*), standard deviations (*SD*), minimum value (*Min*), maximum value (*Max*). No significant differences between training groups ($p < .05$).

8.3.3 Randomization check

Due to procedural restrictions, participants could not be paralleled according to their original JS_{obs} score at test time 1, so it was decided on randomization. It must be considered, however, that a difference between groups concerning JS or the attentional bias or both, which existed before the experiment would be critical to the present study as the training effect might depend on the original values.

Table 8: Descriptives of Justice Sensitivity observer (JS_{obs}), Justice Sensitivity victim (JS_{vic}) and Justice Sensitivity beneficiary (JS_{ben}) before the training, separated for training conditions

facet	training condition	Descriptives		Results of *t*-test		
		M	*SD*	*t*	*df*	*p*
JS_{obs}	avoid justice	3.18	0.70	0.91	41	.37
	attend justice	2.97	0.76			
JS_{vic}	avoid justice	3.01	0.84	-0.64	41	.52
	attend justice	3.16	0.57			
JS_{ben}	avoid justice	3.02	0.56	0.74	41	.46
	attend justice	2.86	0.79			

Note. Sample Size (*N*), Means (*M*), standard deviations (*SD*) and results of t-test, avoid justice condition $N = 21$, attend justice condition $N = 22$.

the neutral versus the unjust priming were distributed equally in the two training groups and their data did not vary in any respect from the persons who had not taken part.

To check whether the randomization was successful, the JS data obtained in an independent session 10 weeks before the experiment (matched with present participants by a personal code) was submitted to a two-sample t-test, comparing the two training groups. They neither differed in in their JS_{obs}, nor JS_{ben} or JS_{vic}, hence the randomization can be considered successful (table 8, p.73).

8.3.4 Dot probe task

In order to prepare the latency data for the analysis, error trials were excluded from the analyses. In total, this concerned 3,3 % of the pretest latencies and 4,4 % of the post-test. The individual error rate ranged from 0 % to 10 % in the pretest and 0 % to 20 % in the post-test. Parallel to study 1, the same five methods of eliminating outliers were applied tentatively to the data. Then, the split-half reliability was computed by randomly splitting the dot probe task into two test halves and calculating the speeding index (cf. chapter 7.5) separately for the two test halves. All reliabilities were computed for the speeding toward just stimuli, unjust stimuli and both, respectively, but the results of the latter yielded no important additional information, so only the detailed analyses (separated for just and unjust word pairs) are reported in appendix D. Most split-half correlations were negative, none exceeded r = .26 (not significant), independent of the method applied to delete the outliers. Therefore, applying the Spearman-Brown formula for adjusting the correlations was not appropriate (Schmukle, 2005). Apparently, a maximum correlation of .26 (among many negative correlations) between two indexes which are supposed to measure the same variable is poor.

As no method of excluding outliers produced an acceptable reliability, it was decided on the same method as in study 1, that is eliminating those outliers which are more than 1,5 individual standard deviations above the individual mean (cf. chapter 2.2.5).

Dot probe task: description of the data without outliers

Tables 9 (p.75) gives an overview of the raw probe detection latencies after outliers were eliminated. In general, all participants were faster to detect a probe – any probe – after they had received the training. The differences between training groups are insignificant.

Table 9: Dot probe latencies for unjust and just word pairs, separated for training condition and test time (before and after the training)

test time	training condition	probe behind neutral control word		probe behind (un)just stimulus word	
		M	*SD*	*M*	*SD*
unjust word pairs					
pretest	avoid justice	566	111	564	110
	attend justice	539	89	534	83
post-test	avoid justice	534	83	540	90
	attend justice	531	89	530	92
just word pairs					
pretest	avoid justice	562	115	567	105
	attend justice	533	90	534	87
post-test	avoid justice	538	100	537	94
	attend justice	528	91	522	84

Note. Means (*M*) and standard deviations (*SD*) in milliseconds, avoid justice condition $N = 25$, attend justice condition $N = 28$.

Table 10 displays the differences and the changes in speeding toward justice and injustice related stimuli. In general, the mean differences in speeding between the training groups are small in regards to both, just and unjust stimuli in the pretest (13 ms and 15 ms) as well as in the test trial after the training (17 ms and 18 ms).

Table 10: Speeding toward just and unjust words, before and after the training, separated for training condition

test time	training condition	Speeding toward unjust words		Speeding toward just words	
		M	*SD*	*M*	*SD*
pretest	avoid justice	-8	43	6	78
	attend justice	7	32	-7	38
post-test	avoid justice	-12	47	-9	54
	attend justice	6	32	8	58

Note. Means (*M*) and standard deviations (*SD*) in milliseconds, avoid justice condition $N = 21$, attend justice condition $N = 22$.

Test of hypothesis 2: detailed analyses of the dot probe latencies

Hypothesis 2 predicts that the avoid justice group will tend away from (in)justice-related stimuli after the training and the attend justice group will focus on such stimuli compared to a baseline measured before the training. This was tested separately for just (hypothesis 2.1) and unjust words (hypothesis 2.2) by an ANOVA with the training as between group factor and the test time (before vs. after the training) as a repeated factor.

Hypothesis 2.1: speeding toward just words

For speeding toward justice-related words, results are unambiguous: None of the variables (training: $\eta_p^2 = .001$, F (1,51) = 0.03, $p = .87$; test time: $\eta_p^2 = .00$, F (1,51) = 0.00, $p = .99$) nor the interaction training x test time ($\eta_p^2 = .03$, F (1,51) = 1.51, $p = .23$) explained a noteworthy share of variance or approached significance. None of the results gave reason to reject the null hypothesis.

Hypothesis 2.2: speeding toward unjust words

A slightly different picture emerges for speeding toward injustice-related words. A repeated measures ANOVA with two factors (training condition and test time) showed a significant effect of the training condition ($\eta_p^2 = .09$, F (1,51) = 5.28, $p < .05$). But as there is no significant effect of test time ($\eta_p^2 < .01$, F (1,51) = 0.09, $p = .76$) or the interaction training x test time ($\eta_p^2 < .01$, F (1,51) = 0.04, $p = .85$), this finding hints to a group difference which was a existent before the training and does not confirm the effectiveness of the training procedure itself. Again, the results give no reason to reject the null hypothesis.

8.3.5 Experimental game

The general emotional reaction when confronted with an unjust distribution was modest (3.32 to 3.76), considering the scale range from 1 (not at all) to 6 (very much).

An equal distribution in the experimental game is fulfilled, when the participant chooses to give 5€ to the victim and take 5€ from the perpetrator – which leaves 5€ to the subject and makes a perfectly fair distribution. This was preferred by 36 % of the participants. On average, over 40 % of own resources were spent to reestablish

justice, in both training groups. Nearly all participants invested own resources to punish the perpetrator (93 %) and compensate the victim (96 %).

Test of hypothesis 3.1 and 3.2: emotional reaction

Both groups displayed nearly the same degree of moral outrage, but the avoid justice reported a slightly higher intensity of this emotion.

Table 11: Intensity of emotions when confronted with an unjust distribution in the experimental game

Emotion	training condition	*M*	*SD*
Moral outrage	avoid justice	3.48	1.45
	attend justice	3.36	1.55
Anger	avoid justice	3.76	1.23
	attend justice	3.32	1.57

Note. Means (*M*), standard deviations (*SD*), avoid justice condition $N = 21$, attend justice condition $N = 22$.

Regarding anger, a similar picture emerged, and the difference was even more pronounced (table 11). As the direction of the effect is in contrast to the proposed outcome, further statistical tests were not appropriate.

Test of hypothesis 4: investment of own resources to reestablish justice

The aim of the experimental game was to measure real behavior (in contrast to self-reported attitudes) when confronted with injustice, in this case an arbitrary and unfair distribution of money. The only way to compensate the victim or punish the perpetrator (or both) included the sacrifice of own resources. The results separated for the training conditions can be found in table 12.

Table 12: Behavior when confronted with an unjust distribution in the experimental game

Investment of own resources	training condition	*M*	*SD*	*Min*	*Max*
Sacrificed own resources	avoid justice	4.24	1.15	1.50	5.50
	attend justice	4.02	1.69	1.00	7.50
Compensation of victim	avoid justice	4.24	1.67	0.00	8.00
	attend justice	3.82	1.47	1.00	5.00
Punishment of perpetrator	avoid justice	4.24	1.86	0.00	10.00
	attend justice	4.21	2.56	0.00	10.00

Note. In Euro. Means (*M*), standard deviations (*SD*), minimum values (*Min*), maximum values (*Max*), avoid justice condition *N* = 21, attend justice condition *N* = 22.

Over all, there is little difference between compensation of the victim and punishment of the perpetrator. Interestingly, there is an over all difference regarding the minimums and maximums: While three persons (independent of training group) punished the perpetrator by taking all the money from him, the victim never received maximal compensation. To sum up, the groups hardly differed at all and those small differences which do exist contradict the proposed outcome.

8.3.6 Justice Sensitivity

All scales showed internal consistency ($\alpha > .80$), replicating the findings of Schmitt et al. (2005). One person had no JS data from t2 due to a corrupted data file. Table 13 gives an overview of the characteristics obtained at test time 2.

Table 13: Descriptives of Justice Sensitivity observer (JS_{obs}), Justice Sensitivity victim (JS_{vic}) and Justice Sensitivity beneficiary (JS_{ben}) at test time 2

facet	*N*	*M*	*SD*	*min*	*max*
JS_{obs}	52	3.67	0.79	1.00	5.40
JS_{vic}	52	3.80	0.71	-2.30	3.80
JS_{ben}	52	3.50	0.80	1.70	5.60

Note. Number of participants (*N*), means (*M*), standard deviations (*SD*), minimum value (*min*) and maximum value (*max*).

An overview of the JS scores from all perspectives separated by training group and including the data of the mass testing procedure (test time 1) is given in table 16 (p.87).

Test of hypothesis 5: State of Justice Sensitivity

Did the two groups differ in their JS values according to the received training after they had observed an unjust event in the experimental game? According to hypothesis 5, persons trained to pay attention to (in)justice should score higher in JS_{obs} than persons trained to avoid (in)justice, while the experimental game should not affect JS_{ben} and JS_{vic}. For the latter two, no group differences were expected.

Hypothesis 5.1: Effect on JS_{obs}

After the experimental game, the attend justice group had a lower score (M = 3.43, SD = 0.83) in JS_{obs} than the avoid justice group (M = 3.92, SD = 0.68). This difference contradicts the hypothesis, therefore no further analysis was carried out.

Hypothesis 5.2: Effect on JS_{vic} and JS_{ben}

As stated in the hypothesis, there was hardly any difference between the training groups after the training. Persons trained toward injustice showed lower JS_{vic} and higher JS_{ben} than those trained to avoid (in)justice, but the difference is not significant. Naturally, a simple test of significance is not sufficient, when the null hypothesis is the expected outcome: A bigger sample might easily change the outcome (Bortz et al., 2006). However, as a bigger sample is not available the insignificant finding will be accepted as a hint as to the correctness of the hypothesis.

8.3.7 Amnesty International Questionnaire: quality of the scale

The Amnesty International Questionnaire (AIQ) had been designed exclusively for this purpose and had not been used before, so an analysis in regards to its quality was carried out before examining its relation to the other variables. Of course, scientific standard would have required to test the questionnaire first with a sample unrelated to the present study. Due to time restrictions, this was not possible, so the data derives from the sample of study 2. Still, main tendencies might be shown.

According to the Kolmogoroff-Smirnoff test (appropriate for $N > 50$), all items differ significantly from normal distribution. Histograms and skewness show that

there is no general pattern for all items but that they are differently distributed. All items posses a skewness below 0.90 / -0.90, with the exception of one item (-1.25): "I personally would be willing to sign when Amnesty International is collecting signatures". All values of kurtosis are smaller than 0.89.

The item means differ between 1.68 and 3.60. Nearly all categories of all items are occupied, again with the exception of the signature-item (see appendix B). Extremely easy or difficult items require special attention as they are often not very informative. The mean item difficulty was high (0.5) and the difficulties ranged between 0.2 and 0.9. With the exception of one rather difficult item ("I would be willing to organize a public demonstration", difficulty = 0.87) all items meet the recommendation of Bortz et al. (2006) of a value between 0.2 and 0.8. Still, the critical item is retained for further analyses because of its high item-total correlation (r_{it} = 0.63). The corrected item-total correlation lies between 0.41 and 0.73 and ranges between high (r > 0.5; 14 items) and moderate (r = 0.3 to 0.5; 3 items; Bortz et al., 2006).

The mean inter-item correlation is .39 (range: .05 to .78) and lies within the area of acceptance as proposed by Briggs and Cheek (1986). In this area homogeneity of items is given without limiting the spectrum of the construct through undue redundancy. In conclusion, the suitability of the items is satisfactory.

Explorative Factor Analysis (Principal Axis Factor Analysis)

For further information about the structure and convenience of the items, a principal axis factor analysis was computed, because this method is adequate to trace back the correlations between the items and a latent variable (Bühner, 2006).

Considering the assumptions for the principal axis factor analysis, none of the 17 items is normally distributed, which can reduce their correlation with each other. As the mean inter-item correlation is still satisfactory, it is preferred to ignore this. Although recommended for optimal results, normal distribution is not obligatory for principal axis factor analysis (Bühner, 2006).

By means of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), the criterion of substantial correlations of the items was verified. The found KMO of .79 is moderate (Bühner, 2006). Bartlett's test of sphericity proves that all correlations differ significantly from zero ($p < .01$) and the Measures of Sampling Adequacy (the correlations of each single item with the residual items) are sufficient with $r > .60$ (Bühner, 2006).

The commonality of 10 items is sufficient ($h^2 > .60$), 3 items are close to sufficient ($h^2 > .50$), and 4 items are not sufficient ($h^2 > 0.28$). For a factor analysis, a commonality of $h^2 > .60$ and a minimum of $N = 60$ is required, but as Bühner (2006) also points out, this is rarely achieved in practice. As the principal axis analysis tends to underestimate the item commonalities and only 3 items miss the goal of a commonality larger than .60 when entered into a principal component analysis, a factor analysis was computed nevertheless to get a general idea of the structure of the data. However, no decisions (such as excluding any items) or extensive interpretations should be based on the findings.

Results of the Principal Axis Analysis

Different criteria were used to extract factors. Theory predicts that the scale represents one factor, the willingness to take action to end an observed injustice. Depending on the criterion employed, different statistical solutions emerged.

The scree plot of the eigenvalues (scree test after Cattell, 1966; cf. figure 2) cannot be interpreted unambiguously, the data justifies a solution with one or two factors.

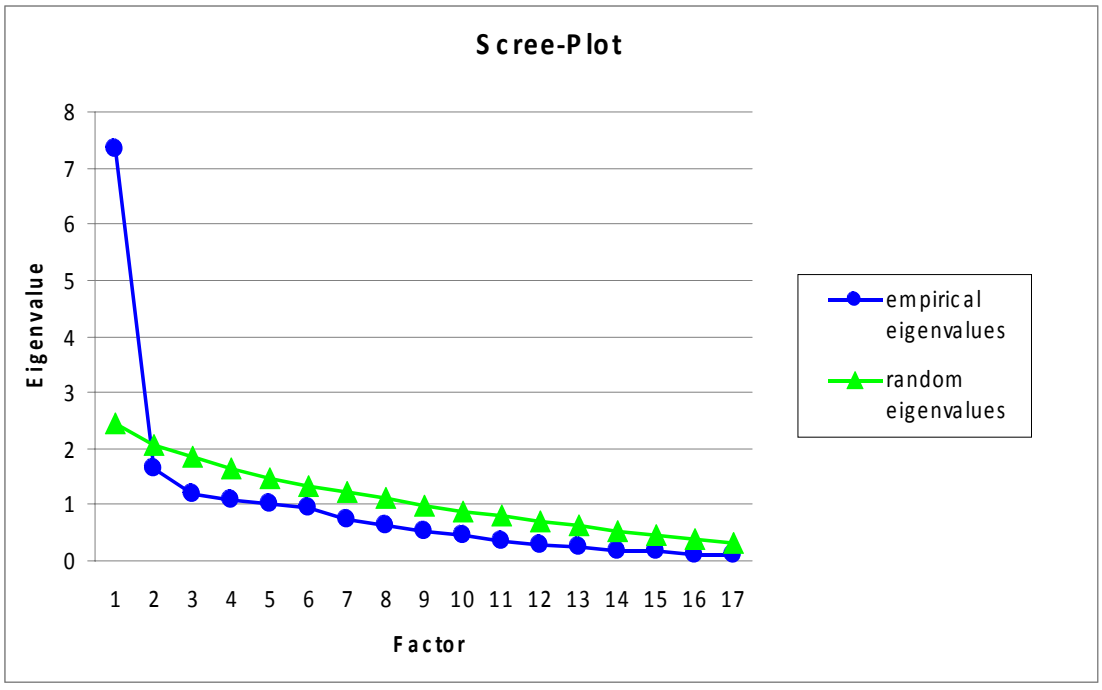


Figure **2: Eigenvalues of the Amnesty International Questionnaire**

The Parallel Analysis from Horn (1965), a more objective method, finds only one factor which exceeds the randomly generated eigenvalues and can therefore be

regarded as statistically relevant (cf. figure 2). But this test is inappropriate when there is a strong first main component (Bühner, 2006). Therefore Velicer's Minimum Average Partial (MAP-) Test, realized after O'Connor (2000), was computed and again a single component was found.

The last two methods (which are preferred to the scree test by Bühner, 2006) confirm the one factor solution proposed by theory, and therefore are evidence for the quality of the scale. Still, all findings are to be treated carefully because of the restrictions caused by a small sample and moderate commonalities. The same is true for the criterion of simple structure, which is met by all but three items, which have high loadings on the second factor as well (see appendix B).

Cronbach's alpha is very high (.92), so internal consistency can be assumed. Removing any of the item does not improve Cronbach's alpha.

8.3.8 Results of the Amnesty International Questionnaire

For measuring the *inclination to reestablish justice*, an index was devised by aggregating across the 17 items of the scale. Over both groups, the willingness to reestablish justice was rather high (2.36), considering the scale ranges from 1-4. An overview of the main characteristics of the AIQ can be found in table 14.

Table 14: Characteristics of the Amnesty International Questionnaire.

	M	*SD*	skewness	kurtosis	*MIC*	α	range
willingness to act to reestablish justice	2.36	0.55	-.54	-.35	.39	.92	1-4

Note. Mean (*M*), standard deviations (*SD*), skewness, kurtosis, mean inter item correlation (*MIC*), Cronbach's α (internal consistency) and range of respond scale. $N = 53$.

Test of hypothesis 6: inclination to reestablish justice

The inclination to reestablish justice is nearly identical in both training groups (avoid justice group $MD = 2.32$, $SD = 0.54$; attend justice group $MD = 2.39$, $SD = 2.32$). The small difference is not significant ($t = -.43$; $df = 51$, $p = .67$, $N = 53$).

8.4 Synopsis of the hypotheses testing in study 2

Hypothesis 2 stated that the dot probe training influences the attentional bias toward just and unjust stimuli. The data of the present study did not support this hypothesis, but as the latency data included several problems, no further interpretation should be based on this finding: The standard deviation of latencies and accordingly of the speeding index was large ($SD_{speeding}$: 32 ms to 78 ms), especially considering that the effect found by MacLeod et al. (2002) with the dot probe training ranged between 19 ms and 24 ms and the group differences in the present study were even lower. Thus, the standard deviations were larger than the maximal difference between training groups in the post-test, which is in line with the weak outcomes for reliability. However, this finding is common in regards to reaction time data. As a result, the true effect can often hardly be detected statistically due to the low 'signal-to-noise' ratio (Fazio, 1990).

Hypothesis 3 proposed that persons trained to focus on justice and injustice will show more pronounced anger and moral outrage when confronted with an unjust situation. The effect was not supported by the data, neither for moral outrage nor for anger. In fact, the emotional reaction of the avoid justice group was stronger than of the attend justice group.

Hypothesis 4 stated that persons trained to focus on justice and injustice will invest more of their own resources in order to reestablish justice. Contradicting this hypothesis, participants in the attend justice group did invest fewer of their own resources to reestablish justice than participants in the avoid justice group

Hypothesis 5 stated that persons trained to focus on justice and injustice will show higher scores in JS_{obs} after observing injustice in the experimental game than persons trained to avoid (in)justice. Results were reversed, however, so this hypothesis is not supported. Further, it was proposed, that JS_{vic} and JS_{ben} would not differ between the training conditions. Indeed, no significant differences were found between training groups.

Hypothesis 6 stated that the willingness to act will depend on the training condition: The attend justice group will show more willingness than the avoid justice group. This hypothesis was not supported: Scores in both groups were nearly identical.

8.5 Post hoc hypotheses including Justice Sensitivity from test time 1

The central idea of the second study was to follow a strictly experimental design to allow for causal conclusions. But most of the results did not support the to-be-tested hypotheses. To gain indications for future research, it was decided to include the available JS data from the independent mass testing session weeks before the experiment (t1) for further analyses. Of the present sample, 43 persons did have matching data.

The central post hoc question to be answered is whether the variables depend on JS (t1) and if this relation is moderated by the attentional training. However, this procedure is clearly beyond the experimental design strived for in this paper, and for this very reason the following post hoc hypotheses were not included in the original design of the experiment.

Description of the Justice Sensitivity scores at test time 1

In regards to the present sample, all scales showed internal consistency ($\alpha > .80$). JS scores were considerably higher after the experimental game than during the independent session 10 weeks ago.

Table 15: Descriptives of Justice Sensitivity observer (JS_{obs}), Justice Sensitivity victim (JS_{vic}) and Justice Sensitivity beneficiary (JS_{ben}) at test time 1

facet	*N*	*M*	*SD*	*min*	*max*
JS_{obs}	43	3.07	0.73	1.50	4.40
JS_{vic}	43	3.09	0.71	1.10	4.50
JS_{ben}	43	2.94	0.68	0.90	4.20

Note. Sample size (*N*), means (*M*), standard deviations (*SD*), minimum (*min*) and maximum values (*max*).

Post hoc hypothesis 1: emotional reaction

Does the emotional reaction (moral outrage or anger) toward the unjust distribution in the experimental game depend on JS_{obs}(t1)? Are individuals sensitive from an

observer's perspective at test time 1 more inclined to sacrifice own resources in order to reestablish justice? As the training is believed to moderate the effect, multiple regression was chosen to test these hypotheses.

As in study 1, JS_{obs} (t1) was z-standardized and the training condition was dummy coded (0 = training to avoid (un)just stimmuli, 1 = training to pay attention to (un)just stimuli), in line with the recommendations of Aiken & West (1998, p.128) for interactions involving a categorical and a continuous variable.

JS_{obs}, the training condition and the interaction term JS_{obs} x training were entered simultaneously as predictors into the regression equation. Anger, moral outrage and the inclination to reestablish justice, respectively, were employed as criteria.

This model explained 10 % of the total variance of **anger**, but was not significant (R^2 = .10, adjusted R^2 = .03, $F(3,39) = 1.47$, p = .24). The training condition (β = -.05, t = -.31, p = .76) had nearly no effect on anger, but the effect of JS_{obs}(t1) approaches significance (β = .40, t = 1.75, p = .09). The interaction JS_{obs}(t1) x training is not significant (β = -.15, t = -.65, p = .52).

Only JS_{obs} survives a statistical backward selection of predictors (by $p > .10$) and the resulting model nearly reaches significance (p = .05), but explains merely 9 % of the variance of anger (R^2 = .09, adjusted R^2 = .07, $F(1,40) = 4.03$). The resulting effect size (f^2 = 0.07) ranges between a small and a moderate effect according to Bortz et al. (2006). This result is not further considered as the goal of the experiment was to find a relationship between the training and anger, not between JS_{obs} and anger.

Considering **moral outrage** as criterion, the model explained 7 % of the total variance and does not reach significance (R^2 = .07, adjusted R^2 = .01, $F(3,39) = 1.08$, p = .37). Neither one of the proposed predictors reached significance (training condition: β = .03, t = .20, p = .84; JS_{obs}(t1): β = .39, t = 1.68, p = .10; JS_{obs}(t1) x training: β = -.19, t = -.83, p = .41). Accordingly, not a single predictor survived the backward selection of predictors by the criterion $p > .10$.

Post hoc hypothesis 2: investment of own resources to reestablish justice

The bivariate correlation between $JS_{obs}(t_1)$ and investment of own resources is positive as expected, but rather low and insignificant (r = .22; p = .15). When calculated for the two training groups separately, the correlation disappears in the avoid justice group (r = .03; p = .90) and gains strength in the attend justice group (r = .33, p = .13).

This interaction was tested via multiple regression, which was conducted the same way as explained above. The model explained only 8 % of the total variance and did

not reach significance (R^2 = .09, adjusted R^2 = .02; $F(3,39)$ = 1.21; p = .32). The main effect of training condition was not significant (β = -.81, t = -1.18, p = .25), nor was the main effect of JS_{obs} t1 (β = .03, t = 0.11, p = .91), or the JS_{obs}(t1) x training interaction (β = .73, t = 1.07, p = .29).

Thus, employing the statistical backward selection of predictors (by $p > .10$), both main effects were excluded and the interaction left as single predictor, but apparently, the main effects cannot be eliminated when the interaction is kept in the model. Nevertheless, figure 3 illustrates rather clearly that the (insignificant) interaction is less meaningful than the fact that the avoid justice group invested more own resources to reestablish justice (and not less, as proposed).[9]

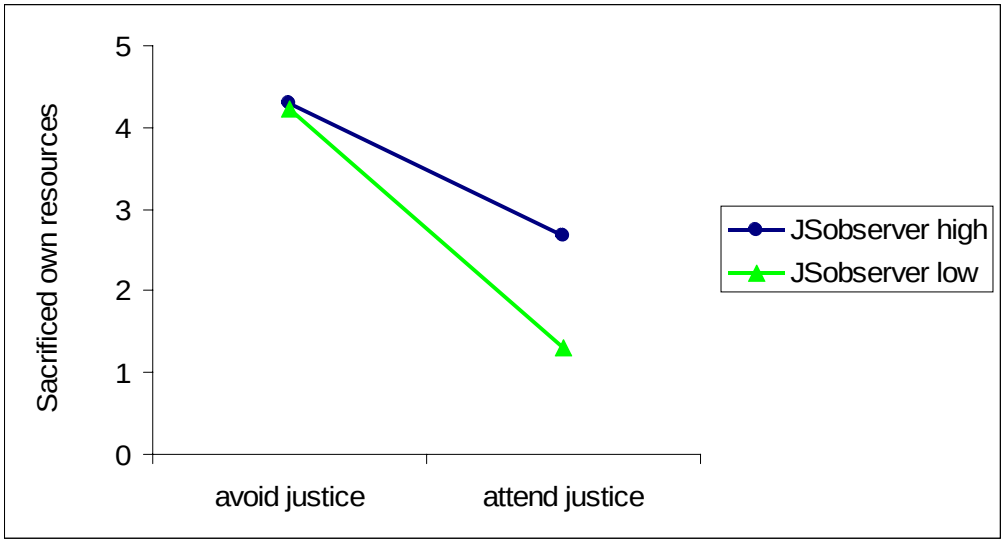


Figure 3: Interaction Training x JSobserver (t1)

In summary, there is weak empirical evidence for an influence of JS_{obs}(t1) on anger, and no support for the proposed moderation model. Neither the effect of JS_{obs}(t1) on moral outrage nor on the investment of own resources was moderated by the training, and the main effect of JS_{obs}(t1) itself was not convincing.

9 The assumption n*ormality of residual* is not fulfilled. According to a Shapiro-Wilk test the residual differs significantly from normal distribution ($p < .01$), which might impair significance tests (Cohen et al., 2003, p.120). Because of the low explanatory power, this is not considered further.

Post hoc hypothesis 3: change in the state of Justice Sensitivity

Table 16 gives a detailed overview of the scores of JS_{obs}, JS_{vic} and JS_{ben}, differentiated in regards to the training group and the test time (t1= independent session weeks before the experiment; t2 = after the training and the experimental game).

The outcomes show that scores of all scales increased considerably after the experimental game. The differences between pretest and post-test are highly significant for all perspectives, calculated for the entire sample or the training groups separately ($p < .01$).

Table 16: Descriptives of Justice Sensitivity observer (JS_{obs}), Justice Sensitivity victim (JS_{vic}) and Justice Sensitivity beneficiary (JS_{ben}) at test time 1 and 2, separated for training conditions

	before training (t1)			after training (t2)		
	N	*M*	*SD*	*N*	*M*	*SD*
JS_{obs}						
avoid justice	21	3.18	0.70	25	3.92	0.68
attend justice	22	2.97	0.76	27	3.43	0.83
JS_{vic}						
avoid justice	21	3.01	0.84	25	3.76	0.80
attend justice	22	3.16	0.57	27	3.83	0.62
JS_{ben}						
avoid justice	21	3.02	0.56	25	3.62	0.81
attend justice	22	2.86	0.79	27	3.39	0.80

Note. Sample Size (*N*), Means (*M*), standard deviations (*SD*).

It was already shown in the manipulation check that JS_{obs} did not differ significantly between the training groups. Still, it might be possible that the increase of JS_{obs} compared to JS_{obs} (t1) was higher in the attend (in)justice group than in the avoid (in)justice group. This assumption is not supported, however, the average change in JS_{obs} was nearly identical in both groups (attend justice group: 0.71; avoid justice group: 0.76).

Post hoc hypothesis 4: willingness to reestablish justice

There is a close and significant correlation of *willingness to act against injustice* and the JS_{obs} scores before the experiment (r = .41, N = 42, p < .01) as well as after the training (r = .44, N = 42, p < .01). Is this correlation moderated by the attentional training? As before, it was expected that the effect of JS_{obs} on the willingness to act is moderated by the training, so the z-standardized JS_{obs}(t1), the dummy coded training condition and the interaction JS_{obs}(t1) x training were entered simultaneously into the regression.

This model turned out to be significant (p < .05) and explained 23 % of the total variance (R^2 = .23, adjusted R^2 = .17, F(3, 39) = 3.90), with an effect size of f^2 = 0.30, a large effect according to Bortz et al. (2006). Within the model, the main effect of JS_{obs}(t1) is moderately significant (β = .41, t = 1.9, p = .06) as well as the main effect of the training condition (β = .26, t = 1.81, p = .08). The influence of the interaction is insignificant (β = .04, t = 0.20, p = .84).

SPSS removes the interaction as a predictor when backwards selection of predictors by the criterion p > .10 is performed. The exclusion has virtually no influence on the outcomes, about the same share of variance is explained by the remaining two predictors (R^2 = .23, adjusted R^2 = .19, F(1, 39) = 5.98, p < .01). Within the model with two predictors, JS_{obs}(t1) becomes significant (β = .44, t = 3,16, p < .01), and the training condition remains marginally significant (β = .26, t = 1,84, p = .07).

8.6 Discussion of study 2

This study aimed at generating an attentional bias for just and unjust stimuli. One group of participants was trained to pay attention to such stimuli while the other group was trained to avoid them. Derived from findings of Anxiety Vulnerability, it was proposed that persons trained toward (in)justice would show more pronounced emotional and behavioral reactions toward injustice, higher subsequent levels of JS and a higher inclination to reestablish justice in a self-report measure.

Summarizing the results, the findings of the present study are more complex than outcomes in the field of Anxiety Vulnerability. The intended manipulation of the attentional bias toward justice and injustice did not influence subsequent variables as was expected, namely dot probe latencies, emotions, behavior, scores on the JS scales,

or the willingness to act when confronted with an unjust incident. No group differences in the proposed direction could be detected.

Starting from these results, several post hoc analyses including JS from test time 1 were computed to get a more detailed picture. Moral outrage and investment of one's own resources in the experimental game did not depend on the original JS scores, the training, or an interaction of both, but JS did have a small (nevertheless insignificant) effect on anger (while training and interaction had not). Compared to the first time of measurement, JS scores of all perspectives were considerably elevated after the experimental game, independent of the training condition.

The original JS_{obs} scores and training condition were both moderately good predictors of the inclination to reestablish justice (AIQ), while the influence of the interaction did not prove an important factor.

One possible reason for the lack of group differences is the training toward just *and* unjust stimuli at the same time, hereby assuming that there is a general (in)justice domain, and the more it is activated, the more pronounced becomes the reaction toward justice related events. It is thinkable that there is no such general domain, and that the domains of "justice" and "injustice" are not well connected at all, perhaps even representing complementary parts.

Positive results of a training with the dot probe originate in the field of Anxiety Vulnerability and it is reasonable to assume that negative stimuli form a category more distinct and salient than justice-related stimuli, and combined with the (possibly contra productive) just word pairs, participants might have been unable to distinguish the category at all. This would account for the poor training effects.

In detail, there was no difference between the latencies before and after the dot probe training procedure. But, as already pointed out, this finding is not to be overestimated, the dot probe latencies were found to be unreliable. Without appropriate reliability, all the findings of the dot probe as measurement instrument are put in question, and real effects might be disguised.

However, it is thinkable that an effect of this size requires a larger sample: To find a significant effect (as the one found in the first study) with a t-test for independent samples, a minimum sample of 86 students (compared to the actual sample size of 53) would have been necessary. This was not allowed for by the external circumstances of the experiment. But even a significant finding would have been put

in doubt as a mere random result when the test is not reliable. Therefore it seems more urgent to concentrate on the possibilities of reducing error variance in future studies, maybe through appropriate treatment of outliers.

Notwithstanding, this outcome does not affect findings of group differences in regards to subsequent variables, which would still prove the dot probe training to be an appropriate manipulation. Unfortunately, this is not the case for most of the dependent variables within the experimental design.

In the experimental game, on average of over 40 % of the participants' own resources were spent to reestablish justice (equal in both training groups). Virtually all participants did invest resources to compensate the victim, and remarkably, nearly as many participants invested own resources to punish the perpetrator – which is not rewarded at the time nor will be known afterward as the experiment was anonymous. One explanation might be that a social norm considered to be shared by the students (an equal share) was violated, thus it was considered important to punish the perpetrator and, by doing so prevent such behavior in future.

Interviews with the participants after the experiment revealed that some of them felt the mentioned activities of Amnesty International to be in vain and did not think their engagement would make any difference. According to Dalbert (1996), such a perception will likely make people restore justice by cognitive restructuring like blaming the victim than motivate them to change the "outer world". Still, the correlation between JS at test time 1 and the inclination to reestablish justice supports that this view was not shared by the majority of the participants and gives evidence to the validity of the scale.

Baumert et al. (2007) recommended emotional measures in instruments like the AIQ be included in order to analyze emotional, attitudinal and behavioral reactions separately. This was accomplished with the experimental game, but not the AIQ, because the parallel to the precedent (supposedly just finished) experiment would have been too obvious. As a consequence, there is no information available about the emotional reaction of the participants when confronted with injustice as described by the AIQ, a flaw which should be mended in future studies.

Still, the strategy seemed to be succesful in the present study: Very few participants suspected a connection between the experiment and the AIQ, and no participant guessed the topic of the study, which reduces plausibility of experimental demand effects. Furthermore, the AIQ had been designed as distinct from the

experiment as possible in order to enhance external validity: It was presented as a paper-and-pencil-version while the experiment was presented entirely on the screens, sported the original Amnesty International logo, and it was stressed that completion of the scale is not obligatory as it is not part of the experimental study. However, concerning the external validity, findings are based on a highly selective sample of psychology students and cannot be generalized to apply to other groups.

As the results of the present study were not consistent with the hypotheses, another variable was included in the analysis to get a more detailed picture of possible frauds: JS_{obs} as measured weeks before the experiment.

A curious finding emerged. Namely, small and insignificant correlations between $JS_{obs}(t1)$ and emotion and behavior in the experimental game. In previous studies, a rather clear correlation between the behavior in experimental games and JS_{obs} was shown (Fetchenhauer et al., 2004, cf. chapter 2.2.3).

Furthermore, the AIQ correlates clearly and significantly with $JS_{obs}(t1)$, suggesting maybe that there is a remarkable gap between self reported and actual behavior.
Other explanations are possible. In the experimental game, participants made a decision concerning real money, thus external validity should be provided. Still, the situation in the laboratory was artificial and – not surprising – students mainly suspected that distributive justice was a topic, six participants even guessed that sacrifice of own resources in order to reestablish justice was being investigated. Considering this, intern validity of this variable can be doubted as subjects might have felt obliged to show their "best" side and divide the money equally (fair solution). Also, the amount of 10 Euro might not have been appealing enough to overcome social demand effects, especially if it was suspected (as one participant did) that this study would explore student's munificence.

JS scores of all perspectives rose considerably and significantly compared to the first occasion of measurement, independent of the training group. Why would the experimental game have an equal effect on all perspectives? An increase of JS_{obs} and a lower increase of JS_{ben} could be expected after observing injustice in the experimental game (cf. Wijn et al., 2009). But the higher scores on the victim's scale are unexpected. It is possible that not the experimental design, but the setting is responsible for higher values in JS. Although each participant went through the program separately, the small group size might induce a social demand effect, so that participants tried to

show them as more justice sensitive. At the first occasion of measurement, the scales were filled out in a mass testing procedure, among a great variety of scales by about a hundred people at the same time. This setting might feel more anonymous than the lab situation. But this theory does not explain the elevation in JS_{vic}, because it is a more anti-social than pro-social perspective and thus should not be elevated by social demand.
Future studies should shed light on this finding. So far, very little empirical studies exist which investigate the relation between situational factors and JS. To my knowledge, no other longitudinal studies measuring JS before and after the experience of justice and injustice have been undertaken.

Another matter is the selection of the **appropriate JS perspective** for the experiment. It was decided on the observer's perspective, and all dependent variables were developed accordingly. A more detailed consideration of the effect of the training on the different perspectives seems to be indicated. JS in general is said to be associated with a bias for just and unjust stimuli, but it might be necessary to differentiate. A person high in JS_{obs} but low in JS_{vic} might show a bias exclusively to observed injustice when JS is activated. A bias concerning unjust behavior toward him- or herself is not an obligatory consequence. For a person high in JS_{vic} and low in JS_{obs}, the pattern might be reversed. In consequence, the training (assuming that its effect is not specific to the observer's perspective) could influence persons quite distinctly, depending on whether they did score highly in JS before the training – and from which perspective. Assuming that only the dominant perspective (given that one of them is sufficiently dominant) will produce a corresponding bias, which further elevates sensitivity from this perspective, a more complex pattern of results can be expected.

A high score in the victim scale often leads to contrary reactions compared to a high score in JS_{obs}. For example, when confronted with the experimental game dilemma, a person high in JS_{obs} is inclined to act, while a person high in JS_{vic} is more focused on his or her own advantage. In a study of Schmitt (1998), the willingness to transfer money to the poorer part of Germany correlated negatively with JS_{vic}, but positively with JS_{obs}. Fetchenhauer et al. (2004) found that the higher respondents scored on JS_{vic}, the less likely they were to offer an equal split in the dictator game, instead he or she offered a less than just amount of money. So increasing JS_{obs} and JS_{vic}

at the same time in two groups would possibly not produce any group differences in the experimental game, while not allowing for conclusions about the effectiveness of the training. A more selective sample (consisting of persons high in JS_{obs} and low in JS_{vic}) could be used to elicit this complex of problems without leaving the experimental design. A more practical way is the inclusion of the interindividual differences in JS before the experiment into the analyses, with the obvious disadvantage that causal conclusions are impaired by the correlational design.

However, the precedent speculations lose plausibility by the finding that JS_{obs} (t2) and the willingness to reestablish justice in the AIQ are closely related while JS_{obs} (t2) and the sacrificed own resources in the experimental game are not. If an elevation in the victim's perspective eliminates the effect of a higher sensitivity from an observer's perspective, this should be true for the AIQ as well, thus the appropriateness of the experimental game is more in doubt than the selection of the appropriate perspective.

In conclusion, within the strictly experimental design no evidence was found as to an effect of the dot probe training procedure. However, a first correlative hint emerged, indicating that the dot probe training did influence the inclination to reestablish justice.

9 General Discussion

In this paper, two studies were presented which employed the dot probe paradigm. The dot probe had been developed and used successfully in research on Anxiety Vulnerability to provide evidence of an attentional bias associated with this disposition. Moreover, this paradigm had been employed to manipulate the very bias, and affect subsequent variables like the response to stress. The replication of these findings in the field of JS yielded a complex pattern of results. In study 1, the detection of an attentional bias toward unjust stimuli among persons highly sensitive to justice was detected, when injustice-related concepts were activated. No such effect was found for just stimuli.

In study 2, the dot probe training failed to produce effects in emotional and behavioral reactions toward observed injustice, in the state of JS and in the inclination to reestablish justice. However, when original JS_{obs} scores were included into the model, an additive influence of these scores and the dot probe training condition on the inclination to reestablish justice (but not on emotional and behavioral responses in the experimental game) could be detected.

According to Schmitt (1997) "at least two conclusions are logically possible whenever empirical observations contradict expectations: (1) The theory, from which the expectations were derived, is wrong. (2) The method by which the observations were made, is inappropriate" (p.3). Both possibilities will be considered in this chapter.

Conclusions concerning the proposed model of JS

Within this paper, a model was proposed which included an attentional bias associated with high trait JS, but only, when (in)justice-related concepts are activated. This model was partly supported in study 1: A bias for unjust stimuli occurred in sensitive persons after watching an unjust scene, while non-sensitives and persons who had watched a neutral clip did not show such a bias. But contradictory to the hypothesis, this bias did not include justice-related words. A reasonable conclusion is that the attentional bias includes exclusively injustice-related stimuli. This speculation needs further evidence, however, as the dot probe task proved unreliable as measurement instrument.

Further, it was expected in study 2 that this bias – once activated by the dot probe training– would result in a more sensitive perception of subsequent unjust incidents, which in turn should elevate the state of JS. This hypothesis could not be confirmed within the experimental design: Emotions, attitudes and behavior toward observed injustice did not depend on the training condition.

One singular exception is the attitudinal measure of the inclination to reestablish justice. Although it was not directly influenced by the training alone, a combined effect of JS (measured weeks before the experiment) and the training condition emerged.

Why did the training procedure not succeed in producing group differences in justice-related variables? One possibility is that the dot probe procedure itself is not appropriate to change an injustice-related bias. Or (including the correlational results) that the effect of the training depends on the level of JS and will therefore not show unless interindividual differences before the training are considered.

Another explanation is that the model proposed is not correct. Is there indeed an attentional bias associated with JS? Does it only emerge when injustice-related networks are activated? This could neither be clearly denied nor confirmed because of the lacking reliability of the latencies.

Does biased attention influence subsequent information processes? It is impossible to make final statements based on the present data, because there is no way to be sure that biased attention was produced by the manipulation. The lacking group differences in emotional, attitudinal and behavioral reactions afterward might entirely be due to the malfunction of the dot probe procedure itself. Another method of manipulation might produce the expected results, so the general model as outlined in the problem formulation can neither be confirmed nor rejected, although weak support derives from a correlational point of view.

Finding a correlation between JS and reaction time measures seems to involve special difficulties. Hangarter's (2001) findings with the EST were just as ambiguous as the present ones. It is interesting that a priming was a necessary prerequisite to find an effect in Hangarter's study as well as in the present one. Of course, human reactions are always the result of person x situation interactions, but originally, the bias was not constructed as mainly dependet on situational factors. This is an argument in favor of the model which was outlined in the theory part.

Naturally, further considerations must remain highly speculative at this point. Whether or not such a bias might be more frequent (stable) in justice sensitive individuals cannot be answered based on present data. It is possible that the concept of (in)justice is activated more often in a sensitive person, on one hand because such persons tend to ruminate about unjust events, on the other hand, because their network is more easily and strongly activated by injustice. However, this remains for future studies to explore.

Is the dot probe procedure an appropriate measurement device in JS research?

In line with the expectation that the attentional bias only occurs when both, trait and state JS are high, an attentional bias toward injustice among highly sensitive individuals in study 1 occurred only when they had been primed by an unjust scene. But these findings are flawed severely by the lacking reliability of the dot probe task. What reasons and possibilities might be there to improve this outcome in future studies?

Various explanations come into mind: (1) The data was not treated appropriately, that is, outliers were not excluded in the most effective way. (2) The test might be inadequate to measure an attentional bias connected with JS. (3) There is no attentional bias connected with JSobserver, therefore only error variance is left to be measured.

The last possibility will be discussed below. As for the first two, according to Schmukle (2005), low reliability is a general problem of with the visual dot probe task as well as many other reaction time based response measures such as the Emotional Stroop Task, at least in nonclinical studies. This leads me to suggest two proceedings: 1) Further studies like the one by Ratcliff (1993) to develop a 'best practice' concerning reaction time based measures, hereby enhancing reliability. 2) Reliability should be tested and reported in *all* papers dealing with reaction time data so that a critical review is possible – in any case, this is scientific standard in regards to tests. Schmukle (2005) sums up: "Sufficient reliability of a measure is a prerequisite for research that is concerned with interindividual differences. If a test measures only error variance, interindividual differences in this test are not substantial because they are only due to measurement error. Thus, effects are observed only by chance. Inconsistent results across different studies are the consequence" (p.596).

It would be premature at this point to conclude that the dot probe in general is of no use in the context of JS, but if reliability is repeatedly found as unsatisfactory as in the present studies, not only will all results be severely impaired, but the use of a further application of this method will have to be assessed.

The dot probe task as training device in JS research

The low reliability is disastrous in correlative research, but does not impair effects of the dot probe as a training procedure. In the present study however, the training did not influence subsequent variables in the expected way: It did not produce differences between training groups. One could argue that the training effects are probably quite transient (Grey & Mathews, 2000) and did maybe not last up to the very end of the experiment. But this does not explain the lack of difference between groups when it comes to dot probe latencies themselves and the experimental game presented directly after the training.

Leaving the experimental design by including the interindividual differences in JS before the training, an effect of both, JS and the training is found on the inclination to reestablish justice by contributing time or money to Amnesty international. This is the only, rather weak hint as to an appropriateness of the dot probe training procedure in JS research. Therefore, the tentative conclusion is drawn, that the dot probe is not an appropriate method in the present context.

When questioning the dot probe procedure, one must also consider the stimulus material used. Justice is a complicated and ambiguous issue and experts did vary a lot in the preliminary studies when rating the words, implicating that the category is not very distinct.

Also, to gain a sufficient amount of word pairs, all words with a connection to (in)justice were selected, rather than picking only those with a definite and close relation to (in)justice. Maybe this procedure is not appropriate because, for the dot probe procedure, only the first association with the word will make a difference and not a second meaning it might have under certain circumstances.

A more homogenous word pool could change the outcomes of the dot probe and for future studies it is recommended to revise and improve the stimulus material, if possible with a larger and more representative sample.

But still, an improved word pool is not bound to produce equal results as in Anxiety Vulnerability. MacLeod et al. (2002), who found large differences between priming groups, employed emotionally negative versus emotionally neutral stimuli. Valence might be the crucial factor, and the present study controlled for valence, so this might be an explanation for the weak findings in regard to the dot probe task.

Dot probe task – useful exclusively in Anxiety Vulnerability research?

The dot probe – although now employed in a great variety of fields – has its origins in the research on Anxiety Vulnerability. JS differs in various aspects from this construct which might give an explanation as to why the dot probe did not produce the expected effects. To detect a threat or to detect an injustice can be considered rather distinct processes. The latter requires higher cognitive processes such as the recognition and interpretation of complex patterns including the behavior of others as well as situational factors. It must be decided whether the situation is important enough to be evaluated, which justice principle is to be applied, whether it was violated, whether the perpetrator had a justification and so on. We might assume that Anxiety Vulnerability operates on a less complex and abstract level, more easily influenced by single words such as those used in the dot probe training.

Another difference concerns the function of the construct. Eysenck (1992) explained that "the key purpose or function of anxiety is probably to facilitate the detection of danger or threat in potentially threatening environments. [...] Almost certainly, pre-attentive and/ or attentional processes are centrally involved" (p.4). The importance of attending to threatening stimuli immediately is evident. Threats to social norms, on the other hand, won't generally require a response within the scope of milliseconds. For depression, findings along this line emerged: Joormann (2004) found that depressed persons do not exhibit the rapid attentional bias that characterizes anxiety, but they do however demonstrate maintained attention to negative material and reduced inhibitory control at later stages of information processing. Although the detection and appropriate reaction to injustice is crucial for peaceful human interaction, the *immediate* reaction is not vitally important – as it might well be when a potential threat, for example in form of a sudden movement, appears.

In other studies no connections between chronic headache and a bias toward pain words was found (Asmundson, Carleton & Ekong, 2005). Harkness, Harris, Jones

and Vaccaro (2009) detected no attentional bias associated with obsessive compulsive disorder, nor an effect of a dot probe training procedure.

These examples might suffice to show that the generalization of the results in Anxiety Vulnerability might not be appropriate in any and every case. Indeed, a manipulation of something other than the attentional processes might prove more fertile in the context of JS. A promising work originates from Watkins, Baeyens and Read (2009), who found that a manipulation of the concreteness of rumination serves to reduce depressive experience. Rumination is a crucial part of the JS construct, and future research in this direction might yield more convincing results than the present study.

Is the attentional bias an inherent part of the JS construct?

Originally, frequency was explained as a low threshold for the category of unjust stimuli. Frequency is thus closely related to attention, but neither the EST (Hangarter, 2001) nor the dot probe task in the present studies found clear indicators for attentional processes associated with JS. Effects which were found occurred exclusively after an unjust priming, hinting toward a crucial influence of situational factors.

Thus, conclusions from these findings should be drawn: Frequency should not be mentioned at the same level as intensity of emotion and rumination, but be collocated outside the construct. On one hand, this is in line with economic considerations, on the other hand, this way frequency might prove its value empirically, without being taken for granted or equally as appropriate as the other indicators at once. This seems to be an important step on the way to further exploring and understanding the construct of JS. Moreover, a better differentiation would allow newcomers and researchers from other fields to get a clearer and more detailed picture, encouraging further studies on this topic.

Is Justice Sensitivity equal to Injustice Sensitivity?

At the time these studies were done, the justice domain was considered a conceptual one, housing justice and injustice-related concepts. However, the – albeit weak – evidence for an attentional bias concerning unjust (and not just) words is curious. In literature, more hints toward a similar line of thinking can be found. Baumert et al. (2009) reflect based on their studies that "while JS involves both the accessibility of

concepts related to injustice and to justice, the accessibility of injustice concepts seems to be the more fundamental cognitive mechanism in JS" (p.10). Congruently, Wijn et al. (2009) report that: "unfair events elevate justice sensitivity more than fair events do" (p.6). Their article comes to the same conclusion as van den Bos had already stated in 2003: "*In*justice plays an even more prominent role than justice and [...] it might be more accurate to talk about the psychology of *in*justice as opposed to justice [...]. It is worthwhile to note here that there are other areas of research within psychology (for example, person perception) where negative information has been found to have more impact in people's reactions than positive information" (p.164).

Taking into account that JS had its premiere as sensitivity to befallen injustice, and that the German word *Ungerechtigkeitssensibilität* has had the focus on injustice all along, one might conform to Schmitt et al. (2009) who called the construct sensitivity to *in*justice recently. Justice-related concerns are not excluded by the re-naming, but 'Injustice Sensitivity' is in my opinion a more accurate description of the construct. To draw another parallel to Anxiety Vulnerability – it is rather pointless to talk about a vulnerability to safe situations or words connected to safety – the domain of anxiety would probably not be activated by the opposite of a threatening stimulus.

Whether a focus on injustice will elicit the issue of an attentional bias has to be seen in the future. If injustice is indeed an independent category, the inclusion of justice-related words in study 2 would, in the best case, mean that they were received as neutral, and, in the worst case, the two categories were perceived as contradictory – or not distinguished as coherent categories at all. A replication study employing only unjust words could shed light on this issue.

The present study aimed at enhancing our understanding of Justice Sensitivity by shedding light on the attentional bias supposedly connected with it. Although no strong proof for this connection could be found, the results allowed for important implications in regards to the structure of the construct. Step by step, we might be able to not only describe interindividual differences in the sensitivity to injustice, but to explain why injustice is of little relevance to one person and of great importance to another.

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11 Appendix

Table of contents

Justice Sensitivity victim

Menschen reagieren in unfairen Situationen sehr unterschiedlich. Wie ist es bei Ihnen? Zunächst geht es um Situationen, die zum Vorteil anderer und zu ***Ihrem Nachteil*** ausgehen.

		trifft **überhaupt nicht** zu					trifft **voll und ganz** zu
1	Es macht mir zu schaffen, wenn andere etwas bekommen, was eigentlich mir zusteht.	0	1	2	3	4	5
2	Es ärgert mich, wenn andere eine Anerkennung bekommen, die ich verdient habe.	0	1	2	3	4	5
3	Ich kann es schlecht ertragen, wenn andere einseitig von mir profitieren.	0	1	2	3	4	5
4	Wenn ich Nachlässigkeiten anderer ausbügeln muss, kann ich das lange Zeit nicht vergessen.	0	1	2	3	4	5
5	Es bedrückt mich, wenn ich weniger Möglichkeiten bekomme als andere, meine Fähigkeiten zu entfalten.	0	1	2	3	4	5
6	Es ärgert mich, wenn es anderen unverdient besser geht als mir.	0	1	2	3	4	5
7	Es macht mir zu schaffen, wenn ich mich für Dinge abrackern muss, die anderen in den Schoß fallen.	0	1	2	3	4	5
8	Wenn andere ohne Grund freundlicher behandelt werden als ich, geht mir das lange durch den Kopf.	0	1	2	3	4	5
9	Es belastet mich, wenn ich für Dinge kritisiert werde, über die man bei anderen hinwegsieht.	0	1	2	3	4	5
10	Es ärgert mich, wenn ich schlechter behandelt werde als andere.	0	1	2	3	4	5

Justice Sensitivity observer

Nun geht es um Situationen, in denen Sie mitbekommen oder erfahren, dass ***jemand anderes*** unfair behandelt, benachteiligt oder ausgenutzt wird.

		trifft **überhaupt nicht** zu					trifft **voll und ganz** zu
11	Es macht mir zu schaffen, wenn jemand nicht das bekommt, was ihm eigentlich zusteht.	0	1	2	3	4	5
12	Ich bin empört, wenn jemand eine Anerkennung nicht bekommt, die er/sie verdient hat.	0	1	2	3	4	5
13	Ich kann es schlecht ertragen, wenn jemand einseitig von anderen profitiert.	0	1	2	3	4	5
14	Wenn jemand die Nachlässigkeiten anderer ausbügeln muss, kann ich das lange Zeit nicht vergessen.	0	1	2	3	4	5
15	Es bedrückt mich, wenn jemand weniger Möglichkeiten bekommt als andere, seine Fähigkeiten zu entfalten.	0	1	2	3	4	5
16	Ich bin empört, wenn es jemandem unverdient schlechter geht als anderen.	0	1	2	3	4	5
17	Es macht mir zu schaffen, wenn sich jemand für Dinge abrackern muss, die anderen in den Schoß fallen.	0	1	2	3	4	5
18	Wenn jemand ohne Grund freundlicher behandelt wird als andere, geht mir das lange durch den Kopf.	0	1	2	3	4	5
19	Es belastet mich, wenn jemand für Dinge kritisiert wird, über die man bei anderen hinwegsieht.	0	1	2	3	4	5
20	Ich bin empört, wenn jemand schlechter behandelt wird als andere.	0	1	2	3	4	5

Justice Sensitivity beneficiary

Hier geht es um Situationen, die ***zu Ihren Gunsten*** und zum Nachteil anderer ausgehen.

		trifft **überhaupt nicht** zu					trifft **voll und ganz** zu
21	Es macht mir zu schaffen, wenn ich etwas bekomme, was eigentlich anderen zusteht.	0	1	2	3	4	5
22	Ich habe ein schlechtes Gewissen, wenn ich eine Anerkennung bekomme, die andere verdient haben.	0	1	2	3	4	5
23	Ich kann es schlecht ertragen, wenn ich einseitig von anderen profitiere.	0	1	2	3	4	5
24	Wenn andere meine Nachlässigkeiten ausbügeln müssen, kann ich das lange Zeit nicht vergessen.	0	1	2	3	4	5
25	Es bedrückt mich, wenn ich mehr Möglichkeiten bekomme als andere, meine Fähigkeiten zu entfalten.	0	1	2	3	4	5
26	Ich habe Schuldgefühle, wenn es mir unverdient besser geht als anderen.	0	1	2	3	4	5
27	Es macht mir zu schaffen, wenn mir Dinge in den Schoß fallen, für die andere sich abrackern müssen.	0	1	2	3	4	5
28	Wenn ich ohne Grund freundlicher behandelt werde als andere, geht mir das lange durch den Kopf.	0	1	2	3	4	5
29	Es belastet mich, wenn man bei mir über Dinge hinwegsieht, für die andere kritisiert werden.	0	1	2	3	4	5
30	Ich habe Schuldgefühle, wenn ich besser behandelt werde als andere	0	1	2	3	4	5

Beurteilung (un-) gerechtigkeitsbezogener Wörter

Liebe Expertinnen und Experten,

in diesem Fragebogen geht es darum, den Gerechtigkeits- bzw. Ungerechtigkeitsbezug von 222 Wörtern zu beurteilen.

Aus diesen Adjektiven und Verben sollen diejenigen ausgewählt werden, deren Bezug zur Gerechtigkeit / Ungerechtigkeit möglichst stark ist und deren semantische Bedeutung möglichst eindeutig ist, um sie später in einem Experiment zur Aufmerksamkeitslenkung als Stimuli nutzen zu können.

Bitte beurteilen Sie die Wörter auf der folgenden Seite hinsichtlich ihres Gerechtigkeits- / Ungerechtigkeitsbezuges. Bei einigen der Wörter wird dieser Bezug sehr einfach herzustellen sein, andere sind eventuell nur in bestimmten Kontexten (un-) gerechtigkeitsbezogen oder lassen sich nicht (un-) gerechtigkeitsbezogen verstehen.

Vielen herzlichen Dank für Ihre Mitarbeit!

Miriam Staubach

Hat dieser Begriff *nach Ihrem Sprachempfinden* einen Bezug zu Konzepten der Gerechtigkeit oder Ungerechtigkeit? Bitte kreuzen Sie eine der Zahlen von 0 - 4 an.

1: Der Begriff hat nichts mit Gerechtigkeit / Ungerechtigkeit zu tun.

2: Der Begriff wäre eher ungewöhnlich, aber in bestimmten Kontexten ist ein Gerechtigkeitsbezug / Ungerechtigkeitsbezug denkbar.

3: Der Begriff hat eine Bedeutung, die mit Gerechtigkeit / Ungerechtigkeit in Zusammenhang steht.

4: Der Begriff hat einen eindeutigen Gerechtigkeitsbezug / Ungerechtigkeitsbezug – und darüber hinaus ist die gerechtigkeitsbezogene Bedeutung des Begriffes auch die gängigste.

0: Der Begriff ist mir nicht bekannt.

mehrdeutig	1	2	3	4	0	schützend	1	2	3	4	0	beschimpft	1	2	3	4	0
erbarmenswert	1	2	3	4	0	gleichgestellt	1	2	3	4	0	zahlungspflichtig	1	2	3	4	0
anständig	1	2	3	4	0	priesterlich	1	2	3	4	0	neutral	1	2	3	4	0
unlauter	1	2	3	4	0	bewertet	1	2	3	4	0	enterbt	1	2	3	4	0
tauschen	1	2	3	4	0	arbeitslos	1	2	3	4	0	tugendlos	1	2	3	4	0
ehrlich	1	2	3	4	0	hundsgemein	1	2	3	4	0	stimmberechtigt	1	2	3	4	0
unsachlich	1	2	3	4	0	leugnend	1	2	3	4	0	verleumdet	1	2	3	4	0
hierarchisch	1	2	3	4	0	legal	1	2	3	4	0	bestraft	1	2	3	4	0
unehrlich	1	2	3	4	0	wiedergutmachend	1	2	3	4	0	einseitig	1	2	3	4	0
erbschleicherisch	1	2	3	4	0	beurteilt	1	2	3	4	0	vereinbart	1	2	3	4	0
verboten	1	2	3	4	0	wohlverdient	1	2	3	4	0	koalitionstreu	1	2	3	4	0
parteiisch	1	2	3	4	0	entgegenkommend	1	2	3	4	0	unterdrückt	1	2	3	4	0
erkauft	1	2	3	4	0	ausbeuten	1	2	3	4	0	solidarisch	1	2	3	4	0
höhergestellt	1	2	3	4	0	unbestechlich	1	2	3	4	0	bevormundet	1	2	3	4	0
schadenfroh	1	2	3	4	0	bestochen	1	2	3	4	0	leistungsbewusst	1	2	3	4	0
entschuldigt	1	2	3	4	0	unverstanden	1	2	3	4	0	schwindlerisch	1	2	3	4	0
intolerabel	1	2	3	4	0	vermittelnd	1	2	3	4	0	unzumutbar	1	2	3	4	0
verräterisch	1	2	3	4	0	erstgeboren	1	2	3	4	0	weise	1	2	3	4	0
ausgleichen	1	2	3	4	0	kriegsgefangen	1	2	3	4	0	billig	1	2	3	4	0
beeinflusst	1	2	3	4	0	strafmündig	1	2	3	4	0	ausgewogen	1	2	3	4	0
verheimlicht	1	2	3	4	0	unausgewogen	1	2	3	4	0	gleich	1	2	3	4	0
abgebrüht	1	2	3	4	0	übervorteilt	1	2	3	4	0	entwürdigend	1	2	3	4	0
unfair	1	2	3	4	0	rivalisierend	1	2	3	4	0	mannschaftsdienlich	1	2	3	4	0
unnachgiebig	1	2	3	4	0	demütigend	1	2	3	4	0	nachsichtig	1	2	3	4	0
heimtückisch	1	2	3	4	0	unmoralisch	1	2	3	4	0	übergangen	1	2	3	4	0
rechtens	1	2	3	4	0	verfolgt	1	2	3	4	0	verleumdend	1	2	3	4	0
tugendhaft	1	2	3	4	0	abgemacht	1	2	3	4	0	gierig	1	2	3	4	0
königlich	1	2	3	4	0	bestechlich	1	2	3	4	0	aufrichtig	1	2	3	4	

Appendix A Scale to rate the relation of stimulus words to justice and injustice

Hat dieser Begriff *nach Ihrem Sprachempfinden* einen Bezug zu Konzepten der Gerechtigkeit oder Ungerechtigkeit? Bitte kreuzen Sie eine der Zahlen von 0 - 4 an.

1: Der Begriff hat nichts mit Gerechtigkeit / Ungerechtigkeit zu tun.

2: Der Begriff wäre eher ungewöhnlich, aber in bestimmten Kontexten ist ein Gerechtigkeitsbezug / Ungerechtigkeitsbezug denkbar.

3: Der Begriff hat eine Bedeutung, die mit Gerechtigkeit / Ungerechtigkeit in Zusammenhang steht.

4: Der Begriff hat einen eindeutigen Gerechtigkeitsbezug / Ungerechtigkeitsbezug – und darüber hinaus ist die gerechtigkeitsbezogene Bedeutung des Begriffes auch die gängigste.

0: Der Begriff ist mir nicht bekannt.

sozial	1	2	3	4	0	zurechtgewiesen	1	2	3	4	0	machtbesessen	1	2	3	4	0
pflichtbesessen	1	2	3	4	0	geständig	1	2	3	4	0	charakterfest	1	2	3	4	0
aufgeteilt	1	2	3	4	0	barmherzig	1	2	3	4	0	kritikscheu	1	2	3	4	0
entehrend	1	2	3	4	0	gedemütigt	1	2	3	4	0	versöhnlich	1	2	3	4	0
gleichmütig	1	2	3	4	0	steinreich	1	2	3	4	0	schlitzohrig	1	2	3	4	0
schmarotzerisch	1	2	3	4	0	nichtsahnend	1	2	3	4	0	eingeengt	1	2	3	4	0
hintergehen	1	2	3	4	0	gezwungen	1	2	3	4	0	benachteiligt	1	2	3	4	0
ermächtigt	1	2	3	4	0	belohnt	1	2	3	4	0	subjektiv	1	2	3	4	0
angestiftet	1	2	3	4	0	ethisch	1	2	3	4	0	begründet	1	2	3	4	0
ausgetrickst	1	2	3	4	0	samariterhaft	1	2	3	4	0	fair	1	2	3	4	0
lügnerisch	1	2	3	4	0	ungerechtfertigt	1	2	3	4	0	gerecht	1	2	3	4	0
wuchernd	1	2	3	4	0	rechtmäßig	1	2	3	4	0	gemein	1	2	3	4	0
demokratisch	1	2	3	4	0	regelnd	1	2	3	4	0	klammheimlich	1	2	3	4	0
haftbar	1	2	3	4	0	kritisch	1	2	3	4	0	entlarvt	1	2	3	4	0
humanistisch	1	2	3	4	0	gelost	1	2	3	4	0	zurechtweisend	1	2	3	4	0
erpresst	1	2	3	4	0	suspekt	1	2	3	4	0	unredlich	1	2	3	4	0
vorbestimmt	1	2	3	4	0	reinlegen	1	2	3	4	0	legitim	1	2	3	4	0
missachtend	1	2	3	4	0	unterdrückerisch	1	2	3	4	0	beleidigt	1	2	3	4	0
statthaft	1	2	3	4	0	angezeigt	1	2	3	4	0	gottähnlich	1	2	3	4	0
wohlversorgt	1	2	3	4	0	beschwichtigend	1	2	3	4	0	dubios	1	2	3	4	0
moralisch	1	2	3	4	0	wohlausgewogen	1	2	3	4	0	unethisch	1	2	3	4	0
loyal	1	2	3	4	0	übel	1	2	3	4	0	inakzeptabel	1	2	3	4	0
behindert	1	2	3	4	0	objektiv	1	2	3	4	0	undemokratisch	1	2	3	4	0
ungleich	1	2	3	4	0	schuldfrei	1	2	3	4	0	steuerpflichtig	1	2	3	4	0
wechselhaft	1	2	3	4	0	mitverantwortlich	1	2	3	4	0	gleichwertig	1	2	3	4	0
glaubhaft	1	2	3	4	0	profitorientiert	1	2	3	4	0	bevorzugt	1	2	3	4	0
sabotieren	1	2	3	4	0	rechtfertigend	1	2	3	4	0	zufriedenstellend	1	2	3	4	0
sündlos	1	2	3	4	0	widerspruchsfrei	1	2	3	4	0	richtig	1	2	3	4	0

Hat dieser Begriff *nach Ihrem Sprachempfinden* einen Bezug zu Konzepten der Gerechtigkeit oder Ungerechtigkeit? Bitte kreuzen Sie eine der Zahlen von 0 - 4 an.

1: Der Begriff hat nichts mit Gerechtigkeit / Ungerechtigkeit zu tun.

2: Der Begriff wäre eher ungewöhnlich, aber in bestimmten Kontexten ist ein Gerechtigkeitsbezug / Ungerechtigkeitsbezug denkbar.

3: Der Begriff hat eine Bedeutung, die mit Gerechtigkeit / Ungerechtigkeit in Zusammenhang steht.

4: Der Begriff hat einen eindeutigen Gerechtigkeitsbezug / Ungerechtigkeitsbezug – und darüber hinaus ist die gerechtigkeitsbezogene Bedeutung des Begriffes auch die gängigste.

0: Der Begriff ist mir nicht bekannt.

grundsatztreu	1	2	3	4	0	gutbezahlt	1	2	3	4	0	hinterrücks	1	2	3	4	0
einschüchternd	1	2	3	4	0	hochlöblich	1	2	3	4	0	sozialverträglich	1	2	3	4	0
undankbar	1	2	3	4	0	zugegeben	1	2	3	4	0	weichherzig	1	2	3	4	0
rechtsbewusst	1	2	3	4	0	sachlich	1	2	3	4	0	veränderungsfähig	1	2	3	4	0
ausländerfeindlich	1	2	3	4	0	bündnistreu	1	2	3	4	0	unbehelligt	1	2	3	4	0
durchgefallen	1	2	3	4	0	unparteilich	1	2	3	4	0	disharmonisch	1	2	3	4	0
unverblümt	1	2	3	4	0	zweischneidig	1	2	3	4	0	bettelarm	1	2	3	4	0
fanatisch	1	2	3	4	0	geringschätzend	1	2	3	4	0	kameradschaftlich	1	2	3	4	0
vertrauenswürdig	1	2	3	4	0	zwingend	1	2	3	4	0	redlich	1	2	3	4	0
neidvoll	1	2	3	4	0	hauptverantwortlich	1	2	3	4	0	unterdrückend	1	2	3	4	0
tyrannisch	1	2	3	4	0	betrügerisch	1	2	3	4	0	erpressbar	1	2	3	4	0
leidgeplagt	1	2	3	4	0	prozessfähig	1	2	3	4	0	manipulativ	1	2	3	4	0
disqualifiziert	1	2	3	4	0	unbillig	1	2	3	4	0	ungerecht	1	2	3	4	0
opfernd	1	2	3	4	0	lügnerisch	1	2	3	4	0	transparent	1	2	3	4	0
ruhmbedeckt	1	2	3	4	0	unerlaubt	1	2	3	4	0	pflichtgetreu	1	2	3	4	0
betrogen	1	2	3	4	0	falsch	1	2	3	4	0	misshandelt	1	2	3	4	0
verbündet	1	2	3	4	0	verurteilt	1	2	3	4	0	ebenbürtig	1	2	3	4	0
vorschriftswidrig	1	2	3	4	0	stehlen	1	2	3	4	0	rechtschaffen	1	2	3	4	0

- Beurteilung des Emotionsgehaltes -

Liebe Expertin, lieber Experte,

Wörter, die sich auf Eigenschaften und Taten beziehen oder diese bezeichnen, können in unterschiedlichem Ausmaß bestimmte Gefühle oder Emotionen hervorrufen. So gibt es Adjektive und Verben, die eher angenehme Gefühle erzeugen, und solche, die eher unangenehme Emotionen erwecken.

Im Folgenden sollen etwa 80 solcher Wörter danach beurteilt werden, ob sie eher ein unangenehmes oder eher ein angenehmes Gefühl hervorrufen. Dabei soll jedes Wort, das ein angenehmes, positives Gefühl in Ihnen erweckt, einen positiven Zahlenwert erhalten. Diejenigen Adjektive, die ein unangenehmes oder negatives Gefühl erzeugen, sollen entsprechend einen Wert im negativen Bereich zugewiesen bekommen.

Betrachten wir zum Beispiel die Wörter „erschreckend“ und „kuschelig“. Das Wort „erschreckend“ wird eher ein unangenehmes Gefühl erzeugen und sollte deshalb einen entsprechenden negativen Wert erhalten. Dagegen ist das Wort „kuschelig“ eher mit angenehmen Gefühlen verbunden und sollte daher einen hohen positiven Zahlenwert zugeordnet bekommen.
Wörter können in der Vorstellung andere Wörter hervorrufen, wie z.B. „kuschelig“ die Vorstellung des Wortes „Decke“ oder „Wärme“ usw. Es ist sehr wichtig, dass Sie nur das eine vorgegebene Wort beachten und einschätzen und andere Wörter dabei nicht berücksichtigen:

+	bedeutet: angenehm, sympathisch, anziehend, freundlich
–	bedeutet: unangenehm, unsympathisch, abstoßend, unfreundlich

Bitte schätzen Sie nun jedes Wort, das auf der folgenden Liste steht, auf einer sieben Punkte-Skala ein. Dabei geht die Skala von -3 über 0 bis +3. Die Zahlen haben folgende Bedeutung:

3:	trifft sehr zu	
2:	trifft zu	(Die Bedeutung der Zahlen bezieht sich
1:	trifft etwas zu	sowohl auf den negativen als auch auf
0:	unentschieden	den positiven Bereich)

Eine -3 bedeutet z.B., dass auf diesen Begriff ein negativer Emotionsgehalt sehr zutrifft.
Bevor Sie die einzelnen Adjektive bearbeiten, fangen Sie bitte damit an, dass Sie zuerst alle Wörter einmal durchlesen. Erst danach weisen Sie bitte den Wörtern einzeln jeweils diejenige Zahl zu, die Ihrem Urteil am besten entspricht.

Vielen herzlichen Dank für Ihre Mitarbeit !

Miriam Staubach

─ bedeutet:	unangenehm unsympathisch abstoßend unfreundlich	Bedeutung der Zahlen: 3: trifft sehr zu 2: trifft zu 1: trifft etwas zu
+ bedeutet:	angenehm sympathisch anziehend freundlich	0: unentschieden

kritisch	-3	-2	-1	0	+1	+2	+3	aufrichtig	-3	-2	-1	0	+1	+2	+3
veränderungsfähig	-3	-2	-1	0	+1	+2	+3	mehrdeutig	-3	-2	-1	0	+1	+2	+3
richtig	-3	-2	-1	0	+1	+2	+3	betrügerisch	-3	-2	-1	0	+1	+2	+3
priesterlich	-3	-2	-1	0	+1	+2	+3	gleichgestellt	-3	-2	-1	0	+1	+2	+3
ethisch	-3	-2	-1	0	+1	+2	+3	verbündet	-3	-2	-1	0	+1	+2	+3
eingeengt	-3	-2	-1	0	+1	+2	+3	legal	-3	-2	-1	0	+1	+2	+3
betrogen	-3	-2	-1	0	+1	+2	+3	manipulativ	-3	-2	-1	0	+1	+2	+3
ehrlich	-3	-2	-1	0	+1	+2	+3	undemokratisch	-3	-2	-1	0	+1	+2	+3
verurteilt	-3	-2	-1	0	+1	+2	+3	sozialverträglich	-3	-2	-1	0	+1	+2	+3
boshaft	-3	-2	-1	0	+1	+2	+3	unbestechlich	-3	-2	-1	0	+1	+2	+3
rechtsbewusst	-3	-2	-1	0	+1	+2	+3	steuerpflichtig	-3	-2	-1	0	+1	+2	+3
unterdrückend	-3	-2	-1	0	+1	+2	+3	klammheimlich	-3	-2	-1	0	+1	+2	+3
wechselhaft	-3	-2	-1	0	+1	+2	+3	ausländerfeindlich	-3	-2	-1	0	+1	+2	+3
bestochen	-3	-2	-1	0	+1	+2	+3	objektiv	-3	-2	-1	0	+1	+2	+3
gerecht	-3	-2	-1	0	+1	+2	+3	rechtens	-3	-2	-1	0	+1	+2	+3
rechtschaffen	-3	-2	-1	0	+1	+2	+3	sozial	-3	-2	-1	0	+1	+2	+3
benachteiligt	-3	-2	-1	0	+1	+2	+3	fies	-3	-2	-1	0	+1	+2	+3
zahlungspflichtig	-3	-2	-1	0	+1	+2	+3	pflichtbesessen	-3	-2	-1	0	+1	+2	+3
bestraft	-3	-2	-1	0	+1	+2	+3	königlich	-3	-2	-1	0	+1	+2	+3
fair	-3	-2	-1	0	+1	+2	+3	bestechlich	-3	-2	-1	0	+1	+2	+3
gleichwertig	-3	-2	-1	0	+1	+2	+3	suspekt	-3	-2	-1	0	+1	+2	+3
unmoralisch	-3	-2	-1	0	+1	+2	+3	hochlöblich	-3	-2	-1	0	+1	+2	+3
humanistisch	-3	-2	-1	0	+1	+2	+3	moralisch	-3	-2	-1	0	+1	+2	+3
unparteilich	-3	-2	-1	0	+1	+2	+3	unfair	-3	-2	-1	0	+1	+2	+3

Appendix A Scale to rate the valence of stimulus words

─ bedeutet:	unangenehm unsympathisch abstoßend unfreundlich	Bedeutung der Zahlen: 3: trifft sehr zu 2: trifft zu
+ bedeutet:	angenehm sympathisch anziehend freundlich	1: trifft etwas zu 0: unentschieden

unlauter	-3	-2	-1	0	+1	+2	+3	unethisch	-3	-2	-1	0	+1	+2	+3
ausgetrickst	-3	-2	-1	0	+1	+2	+3	ungerecht	-3	-2	-1	0	+1	+2	+3
anständig	-3	-2	-1	0	+1	+2	+3	unparteilich	-3	-2	-1	0	+1	+2	+3
zwingend	-3	-2	-1	0	+1	+2	+3	unterdrückt	-3	-2	-1	0	+1	+2	+3
gemein	-3	-2	-1	0	+1	+2	+3	sabotieren	-3	-2	-1	0	+1	+2	+3
legitim	-3	-2	-1	0	+1	+2	+3	reinlegen	-3	-2	-1	0	+1	+2	+3
mies	-3	-2	-1	0	+1	+2	+3	stehlen	-3	-2	-1	0	+1	+2	+3
demokratisch	-3	-2	-1	0	+1	+2	+3	steinreich	-3	-2	-1	0	+1	+2	+3
solidarisch	-3	-2	-1	0	+1	+2	+3	übervorteilt	-3	-2	-1	0	+1	+2	+3
zugegeben	-3	-2	-1	0	+1	+2	+3	übergangen	-3	-2	-1	0	+1	+2	+3
gottähnlich	-3	-2	-1	0	+1	+2	+3	unverblümt	-3	-2	-1	0	+1	+2	+3
rechtmäßig	-3	-2	-1	0	+1	+2	+3	ungleich	-3	-2	-1	0	+1	+2	+3
hinterrücks	-3	-2	-1	0	+1	+2	+3	nichtsahnend	-3	-2	-1	0	+1	+2	+3
empörend	-3	-2	-1	0	+1	+2	+3	undankbar	-3	-2	-1	0	+1	+2	+3
erbschleicherisch	-3	-2	-1	0	+1	+2	+3	bevorzugt	-3	-2	-1	0	+1	+2	+3
kritikscheu	-3	-2	-1	0	+1	+2	+3	vorbestimmt	-3	-2	-1	0	+1	+2	+3
unausgewogen	-3	-2	-1	0	+1	+2	+3	hintergehen	-3	-2	-1	0	+1	+2	+3
leistungsbewusst	-3	-2	-1	0	+1	+2	+3	ruhmbedeckt	-3	-2	-1	0	+1	+2	+3
tauschen	-3	-2	-1	0	+1	+2	+3	gleich	-3	-2	-1	0	+1	+2	+3
wohlverdient	-3	-2	-1	0	+1	+2	+3	erpresst	-3	-2	-1	0	+1	+2	+3
ausgleichen	-3	-2	-1	0	+1	+2	+3	gleichmütig	-3	-2	-1	0	+1	+2	+3
unnachgiebig	-3	-2	-1	0	+1	+2	+3	parteiisch	-3	-2	-1	0	+1	+2	+3
tyrannisch	-3	-2	-1	0	+1	+2	+3	ausbeuten	-3	-2	-1	0	+1	+2	+3
ausgewogen	-3	-2	-1	0	+1	+2	+3	ungerechtfertigt	-3	-2	-1	0	+1	+2	+3

Hochschulgruppe Landau

Liebe Kommilitonin, lieber Kommilitone,

vielen Dank, dass Du Dir ein paar Minuten Zeit nimmst!

Wir sind die ai-Hochschulgruppe der Uni Landau und möchten gern die Unterstützung von mehr Studierenden gewinnen. Mit diesem Fragebogen versuchen wir herauszufinden, wo wir am Besten ansetzen können. Aber keine Sorge, das Ausfüllen ist völlig anonym und unverbindlich. Falls Du natürlich Lust hast und gern in unserer Gruppe mitmachen möchtest, bist Du herzlich willkommen!

Bitte beantworte alle Fragen, da Deine Antworten nur dann sinnvoll ausgewertet werden können.

Die folgenden Berichte vermitteln Dir einen Eindruck von unserer Arbeit:

Erfolgsmeldung:

Vietnam: Die Rechtsanwältin **Bui Thi Kim Thanh** wurde um den 18. Juli herum aus der Psychatrie in Bien Hoa entlassen. Sie war dort gegen ihren Willen und ohne medizinische Grundlage festgehalten worden. Sie hatte eine verbotene Dissidentenorganisation rechtlich beraten und außerdem Familien mit niedrigem Einkommen in ihrem Viertel kostenlos vertreten, deren Eigentum von den Behörden konfisziert worden ist und die deswegen eine angemessene Entschädigung fordern. Ihre Inhaftierung war offenkundig willkürlich und politisch motiviert.

Hier muss gehandelt werden:

China:Weil er eine E-Mail über die chinesische Pressezensur in die USA gesendet hatte, wurde der Journalist **Shi Tao** zu zehn Jahren Gefängnis verurteilt.

Teheran: Weil Sie sich für Meinungsfreiheit und Frauenrechte einsetzte, befindet sich die Jounalistin **Jelveh Javaheri** in Haft. Sie wird im Zusammenhang mit im Internet veröffentlichten Artikeln der „Störung der öffentlichen Meinung“, der „Antiregierungspropaganda“ und der „Veröffentlichung von Lügen“ beschuldigt.

Bitte beantworte zuerst die folgenden Fragen:

Was studierst Du? _____
In welchem Semester bist Du? ___
Wie alt bist Du? ___
Bist Du □ weiblich oder □ männlich?

Kennst Du die ai-Hochschulgruppe schon? (bitte ankreuzen)
□ Ja, von Freunden □ Ja, z.B. von Flyern, Infoständen,… □ Ja, aus anderen Quellen □ Nein

Bitte kreuze an, ob die folgenden Aussagen auf Dich zutreffen!

überhaupt nicht			auf jeden Fall

Ich persönlich wäre bereit…

1	…zu unterschreiben, wenn amnesty international Unterschriften sammelt.	1	2	3	4
2	…selber Unterschriften zu sammeln	1	2	3	4
3	…einmalig einen Betrag von unter 10 Euro zu spenden	1	2	3	4
4	…einmalig einen Betrag von über 10 Euro zu spenden	1	2	3	4
5	…als Einzelmitglied jährlich einen finanziellen Beitrag zu leisten (€ 24)	1	2	3	4
6	…die wöchentlichen ai-Treffen zu besuchen und als Mitglied der Hochschulgruppe aktiv zu sein	1	2	3	4
7	...ai-Aktionen in Ausnahmefällen zu unterstützen (z.B., wenn bei einer geplanten Aktion überraschend jemand krank wird)	1	2	3	4
8	…Plakate aufzuhängen und Flyer zu verteilen	1	2	3	4
9	…eine Lesung, Ausstellung, oder Ähnliches zu organisieren	1	2	3	4
10	…eine kostenlose Lesung, Ausstellung oder Ähnliches zu besuchen	1	2	3	4
11	…eine Lesung, Ausstellung, o.Ä. mit Eintritt (unter € 5) zu besuchen	1	2	3	4
12	…zu einer von der ai-Hochschulgruppe veranstalteten Party zu kommen	1	2	3	4
13	…an öffentlichen Demonstrationen teilzunehmen	1	2	3	4
14	…eine öffentliche Demonstration zu organisieren	1	2	3	4
15	…monatlich einen Brief für die Freilassung eines gewaltlosen Gefangenen zu schreiben.	1	2	3	4
16	…die Suche nach Förderern zu unterstützen (z.B. auf Weingütern nachfragen)	1	2	3	4
17	…bei ungewöhnlichen, auffälligen Aktionen mitzumachen (z.B. verkleidet als Guantanamo-Häftlinge aneinandergekettet durch die Fußgängerzone marschieren.)	1	2	3	4

Hast Du noch andere Ideen für uns? Dann schreibe sie hier auf!

Was denkst Du ist das Ziel dieses Fragebogens?

Und noch ein paar Fragen zum Schluss:

1. Bist oder warst Du Mitglied bei amnesty international? Ja □ nein □
   Wenn ja, kreuze bitte an: Einzelmitglied □ Gruppenmitglied □ Weiß nicht □

2. Bist oder warst Du Mitglied einer anderen Menschenrechtsorganisation? Ja □ nein □
   Wenn ja, welcher?

3. Engagierst Du dich (jetzt oder früher) anders für die Menschenrechte?
   In welcher Art?_____

Interesse? Du findest uns im Internet unter **www.amnesty-landau.de**. Oder komm doch einfach mal bei uns vorbei! Wir treffen uns immer mittwochs um 18.00 Uhr in der roten Kaserne, Raum 011.

Table B.1. Characteristics of the unjust stimulus and control words.

unjust / negative words	**association to (in)justice**		**valence**		**frequency**
	M	*SD*	*M*	*SD*	
ungerecht	3.94	0.24	-2.40	0.76_a	1150
eingeengt	1.65	0.84	-2.12	0.88_a	126
ausbeuten	3.76	0.42	-2.75	0.44_a	73
schlampig			-2.67	0.49_b	155
benachteiligt	3.65	0.48	-1.92	0.76_a	1100
unverträglich[1]			-1.93	1.39_b	19
oberflächlich[2]			-1.23	0.67_c	380
unfair	3.53	0.85	-2.20	0.76_a	639
unklug			-2.00	1.00_b	175
ungerechtfertigt	3.29	0.89	-1.68	0.90_a	276
verschwenderisch			-1.73	1.39_b	89
betrogen	3.29	0.75	-2.72	0.46_a	1008
geistlos			-2.53	0.74_b	8
gemein	3.24	0.88	-2.40	0.76_a	925
giftig			-2.73	0.46_b	247
unterdrücken[1]	3.18	0.86	-2.36	0.70_a	7
unnachsichtig[1]			-2.40	0.91_b	11
ungleich	3.18	0.78	-0.75	1.36_a	736
unbegabt			-0.75	0.50_d	21
übervorteilt	3.12	0.76	-1.28	0.98_a	48
streitlustig[1]			-1.27	2.05_b	22
unökonomisch[2]			-1.33	1.59_b	12
bestochen[1]	3.12	0.9	-2.28	0.54_a	316
undankbar[1]			-2.00	0.82_a	90
bestraft	3.06	0.64	-1.44	0.87_a	2842
unkundig			-1.67	1.59_b	6
unterdrückt	3.00	0.91	-2.00	0.87_a	470
trottelhaft			-2.33	0.82_b	0
unethisch	3.00	0.91	-1.88	0.97_a	45
abweisend			-1.87	1.51_c	87
hintergehen	3.00	0.77	-2.56	0.65_a	17
unproduktiv			-2.40	0.74_b	21
bestechlich	3.00	1.03	-2.16	0.75_a	95
gedankenarm			-2.07	1.03_b	1
undemokratisch	2.94	0.80	-1.84	0.99_a	147

unjust / negative words	**association to (in)justice**		**valence**		**frequency**
	M	*SD*	*M*	*SD*	
übervorsichtig			-1.67	0.98_{b}	18
unmoralisch	2.88	1.02	-2.20	0.82_{a}	217
griesgrämig			-2.33	0.72_{b}	46
tyrannisch	2.82	0.98	-2.60	0.65_{a}	10
deprimiert			-2.47	0.74_{b}	198
parteiisch	2.82	0.86	-0.84	1.34_{a}	96
energielos			-0.84	0.46_{d}	7
bevorzugt	2.82	0.86	-0.68	1.22_{a}	1770
materiell			-0.55	0.60_{c}	198
verurteilt	2.76	0.94	-1.44	1.04_{a}	12101
unbeholfen			-1.40	1.12_{b}	174
übergangen	2.76	0.73	-1.92	0.70_{a}	295
weinerlich			-1.80	1.57_{b}	24
reinlegen	2.76	0.81	-1.80	0.76_{a}	11
verbissen			-1.73	1.03_{b}	364
betrügerisch	2.76	0.88	-2.56	0.65_{a}	37
unpersönlich			-2.40	0.83_{b}	33
ausgetrickst	2.76	1.00	-1.48	1.23_{a}	68
kontaktscheu			-1.53	1.36_{b}	4
unlauter	2.71	0.89	-1.60	0.76_{a}	47
unnahbar			-1.80	1.15_{b}	106
stehlen	2.71	1.02	-2.00	0.87_{a}	651
unfähig			-2.07	1.03_{b}	451
manipulativ	2.71	0.75	-2.12	0.93_{a}	27
starrsinnig[1]			-2.13	1.06_{b}	30
einfallslos[2]			-2.07	1.58_{b}	80
erpresst	2.71	1.07	-2.32	0.95_{a}	308
aalglatt[1]			-2.13	1.13_{c}	12
humorlos[2]			-2.53	0.74_{b}	64
sabotieren	2.65	0.97	-2.00	1.12_{a}	110
ungesellig			-1.93	0.88_{b}	4
ausländerfeindlich	2.65	1.08	-2.92	0.28_{a}	49
unfreundschaftlich			-2.07	0.80_{b}	0
unausgewogen	2.59	0.91	-1.24	1.01_{a}	87
unnachgiebig			-0.04	1.37_{b}	200
hinterrücks	2.59	0.84	-2.56	0.65_{a}	71

unjust / negative words	**association to (in)justice**		**valence**		**frequency**
	M	*SD*	*M*	*SD*	
inkompetent			-2.53	0.74_b	63
boshaft			-2.72	0.54_a	52
lieblos			-2.6	0.63_b	120
empörend			-1.32	0.85_a	173
zwingend[1]	1.71	0.89	-1.16	1.07_a	1545
peinlich[2]			-1.32	0.73_c	1617
fies			-2.20	0.76_a	102
faul			-1.07	0.88_c	489
mies			-2.32	0.69_a	257
kalt			-2.67	0.62_b	3273

Note. Means (*M*) and standard deviations (*SD*). Stimulus words in **bold** above the according control word(s). Words are sorted by justice relation of the stimulus words.
[1] = this word was used only in study 1
[2] = this word was used only in study 2.
a = data from own study
b = data derives from Ostendorf (1994)
c = data derives from Schwibbe, Räder, Schwibbe, Borchardt and Geiken-Pophanken (1994)
d = data derives from Heydecke as cited in Hager et al. (1994)

Table B.2. Characteristics of the positive words

just / positive words	association to (in)justice		valence		frequency
	M	*SD*	*M*	*SD*	
gerecht	4.00	0.00	2.48	0.65_{a}	3978
tüchtig			2.00	0.85_{b}	177
fair	3.88	0.32	2.36	0.81_{a}	1721
froh			2.47	0.64_{b}	5612
gleichgestellt	3.59	0.60	1.60	0.91_{a}	176
vorausschauend			1.67	1.23_{b}	116
ausgewogen	3.29	0.67	2.00	1.04_{a}	271
kooperativ			2.00	0.93_{b}	286
gleich	3.18	0.51	0.25	0.99_{a}	32160
modern			0.16	0.58_{c}	960
rechtmäßig	3.12	0.58	1.24	0.93_{a}	532
empfindsam			1.40	1.24_{b}	39
gleichwertig	3.06	0.73	1.20	0.96_{a}	264
schlagfertig			1.14	0.36_{d}	112
moralisch	3.00	0.84	1.56	1.12_{a}	798
energisch			1.40	1.35_{b}	1014
unbestechlich	2.94	1.06	1.64	1.25_{a}	47
konfliktfähig[1]			1.80	1.08_{b}	4
wohlbewandert[2]			1.73	0.88_{b}	0
ethisch	2.94	0.87	1.54	1.06_{a}	286
gewandt			1.47	0.64_{b}	1542
aufrichtig	2.88	0.90	2.64	0.49_{a}	223
warmherzig			2.53	0.64_{b}	74
anständig	2.88	0.83	1.92	1.00_{a}	310
pünktlich			2.07	1.53_{b}	1965
rechtschaffen	2.82	0.78	1.79	0.93_{a}	43
teilnahmsvoll			1.80	1.01_{b}	4
sozial	2.76	0.88	2.24	1.09_{a}	2977
sicher			2.20	0.68_{b}	33129
demokratisch	2.76	0.88	1.64	0.91_{a}	896
selbstsicher			1.47	0.92_{b}	132
rechtsbewusst	2.76	1.06	1.24	0.83_{a}	0
uneigennützig			1.13	1.77_{b}	108
objektiv	2.76	1.00	1.12	1.17_{a}	492

just / positive words	association to (in)justice		valence		frequency
	M	*SD*	*M*	*SD*	
angenehm			1.29	0.36$_{d}$	1492
ehrlich	2.75	0.97	2.72	0.46$_{a}$	2562
kreativ			2.53	0.64$_{b}$	663
wohlverdient	2.71	0.57	1.84	0.80$_{a}$	8
sprachkundig			1.73	1.58$_{b}$	3
rechtens	2.71	0.82	1.72	0.98$_{a}$	377
gelehrig			1.80	1.21$_{b}$	9
unparteilich	2.71	0.96	0.44	1.16$_{a}$	9
hochstrebend			0.20	1.78$_{b}$	0
humanistisch	2.59	1.09	2.12	0.97$_{a}$	19
ungekünstelt			2.07	1.10$_{b}$	16
richtig	2.59	0.77	1.80	1.00$_{a}$	25011
dankbar			1.87	1.30$_{b}$	1925
ausgleichen	2.59	0.97	0.92	0.76$_{a}$	1408
anschaulich			0.93	0.45$_{c}$	428
solidarisch	2.53	0.98	1.75	0.68$_{a}$	380
offenherzig			1.73	0.88$_{b}$	62
sozialverträglich	2.53	1.04	1.13	1.12$_{a}$	301
zufriedenstellend	1.47	0.78	0.80	0.96$_{a}$	333
legal	2.47	0.78	1.52	1.23$_{a}$	1160
sanft			1.53	1.06$_{b}$	1047
legitim	2.47	0.61	1.04	1.06$_{a}$	713
beliebt			1.04	0.46$_{d}$	2458

Note. Means (*M*) and standard deviations (*SD*). Stimulus words in **bold** above the according control word(s). Words are sorted by justice relation of the stimulus words.

[1] = word was used only in study 1
[2] = word was used only in study 2.

a = data from own study
b = Ostendorf (1994)
c = Schwibbe et al. (1994), d = (8): Heydecke (1984, as cited in Hager et al., 1994)

Table B.3: Characteristics of the items of the Amnesty International Questionnaire

	Ich persönlich wäre bereit...	***M***	***SD***	**skew**	**cur**	**diff.**	r_{it}	h^2	γ
1	...zu unterschreiben, wenn ai Unterschriften sammelt	3.60	0.60	-1.25	0.62	0.28	0.52	0.54	0.55
2	...selber Unterschriften zu sammeln	2.15	0.77	-0.01	-0.73	0.45	0.55	0.42	0.57
3	...einmalig einen Betrag von unter 10 Euro zu spenden	2.92	0.87	-0.57	-0.18	0.23	0.57	0.77	0.61
4	...eimalig einen Betrag von über 10 Euro zu spenden	2.19	0.89	0.66	-0.05	0.26	0.41	0.71	0.45
5	...als Einzelmitgied jährlich € 24 zu zahlen	1.92	0.87	0.51	-0.67	0.39	0.59	0.45	0.60
6	...die wöchentlichen ai-Treffen zu besuchen / Mitglied werden	1.92	0.76	0.41	-0.29	0.31	0.65	0.53	0.68
7	...ai-Aktionen in Ausnahmefällen zu unterstützen	2.46	0.92	0.04	-0.75	0.51	0.68	0.74	0.74
8	...Plakate aufzuhängen und Flyer zu verteilen	2.34	0.96	0.21	-0.85	0.69	0.70	0.75	0.74
9	...eine Lesung, Ausstellung o.Ä. zu organisieren	1.77	0.87	0.83	-0.21	0.38	0.61	0.60	0.66
10	...eine kostenlose Lesung, Ausstellung oder Ähnliches zu besuchen	3.08	0.94	-0.88	0.04	0.31	0.73	0.74	0.78
11	...eine Lesung, Ausstellung o.Ä. mit Eintritt (unter € 5) zu besuchen	2.53	0.87	-0.18	-0.57	0.69	0.66	0.96	0.73
12	...zu einer von der ai-Hochschulgruppe veranstalteten Party zu kommen	3.06	0.79	-0.34	-0.67	0.36	0.64	0.66	0.69
13	...an öffentlichen Demonstrationen teilzunehmen	2.57	0.97	-0.19	-0.89	0.52	0.66	0.76	0.71
14	...eine öffentliche Demonstration zu organisieren	1.68	0.75	0.89	0.35	0.87	0.57	0.42	0.59
15	...monatlich einen Brief für die Freilassung eines gewaltlosen Gefangenen zu schreiben	2.08	0.92	0.62	-0.27	0.48	0.49	0.60	0.54
16	...die Suche nach Förderern zu unterstützen	1.92	0.81	0.37	-0.73	0.31	0.64	0.71	0.68
17	...bei ungewöhnlichen, auffälligen Aktionen mitzumachen	1.83	0.83	0.54	-0.71	0.64	0.44	0.28	0.46
	M	2.35	0.85	0.10	-0.39	0.45	0.60	0.63	0.63
	Note. Means (*M*), standard deviations (*SD),* skewness (skew), kurtosis (γ_2), item difficulty (diff) , corrected item-total correlation (r_{it}), commonality (h^2), Loading on the first factor (γ, extraction via principal axis analysis), N=53.								

Deklaration, diese Arbeit selbst verfasst zu haben

Hiermit versichere ich, Miriam Staubach, gemäß § 18 Abs. 8 der Diplomprüfungsordnung Psychologie der Universität Koblenz-Landau, Campus Landau, in der Fassung vom 18.02.1993, dass ich diese Arbeit selbständig verfasst und keine anderen als die angegebenen Hilfsmittel und Quellen benutzt habe. Die Arbeit hat in gleicher oder ähnlicher Form noch keinem anderen Prüfungsausschuss vorgelegen.

Landau, 23.07.2010

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