

2011

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What makes envy hostile:
Perceived injustice, or a frustrated search for an explanation?

by

Omesh Johar

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

Major: Psychology

Program of Study Committee:
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Ames, Iowa

2011

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ACKNOWLEDGEMENTS

I would like to take this opportunity to express my gratitude to those who helped me with the various aspects of conducting this research study. First and foremost, I would like to thank my advisor, Dr. Zlatan Krizan, for his mentorship and guidance throughout the research and the writing of this thesis. His enthusiasm for research has confirmed by aspiration to pursue academia. I would also like to thank my committee members, Drs. Craig Anderson and Veronica Dark, for their thoughtful contributions that strengthened this thesis. In addition, I would like to thank undergraduate research assistants Megan Bartelson, Chelsea Benson, Taylor Hammes, Elizabeth Heuertz, and Kayla Nielsen. This study would not have been possible without their cooperation and assistance. Finally, I would like to express my most sincere appreciation to my parents, Seema and Harish, for teaching me perseverance, dedication and the zeal for learning.

ABSTRACT

Envy often manifests as hostility or derogation of the superior individual. Two experiments investigated whether perceptions of injustice shape such hostility (in the envier). In Experiment 1, responses of participants to hypothetical scenarios showed that people experience more envious hostility toward another individual when their inferior outcomes are unfairly (compared to fairly) determined, and that judgments of situational fairness mediated this relation. In Experiment 2, participants received bogus feedback about the superiority of another. Participants' reports of envious hostility were not significantly different across levels of fairness. However, perceptions of fairness correlated with envious reactions. Both experiments employed an external agent as the perpetrator of injustice. Anger toward this agent strongly predicted envious reactions. Taken together, the data suggest perceived fairness does play a role in envious hostility.

CHAPTER 1: OVERVIEW

“Envy is the art of counting the other fellow's blessings instead of your own.”

-Harold Coffin

Envy has often been associated with the “darker” side of human nature. Being one of the seven cardinal sins, envy has received a lot of attention in Biblical stories as a cause of revengeful motivations (Schimmel, 2008), as in the account of Joseph and his brothers (Genesis, chap. 37-50) and the story of King Saul and David (1 Samuel, chaps. 17-31; 2 Samuel, chap. 1). In all such stories, one of the characters experiences strong envy for another character. As a result, the envier goes to the extreme to hurt the envied. Thus, envy is thought to translate into severe hostility and ill-will toward the envied. Furthermore, it might be for the vicious consequences of envy that the 10th commandment strongly condemns it by saying, "Thou shalt not covet thy neighbour's house, thou shalt not covet thy neighbour's wife, nor his manservant, nor his maidservant, nor his ox, nor his ass, nor any thing that [is] thy neighbour's" (Exodus 20:17).

Is there evidence demonstrating that envy engenders hostility? Smith and Kim (2007) include feelings of hostility in the definition of envy, suggesting that hostility is a key constituent of envy. A strong link between envy and hostility was found in several studies (e.g., Cohen-Charash, 2009; Feather & Sherman, 2002; Parrott & Smith, 1993). For example, Feather and Sherman (2002) found that envy is associated with the feeling that the envied person be “cut down in size”. Similarly, Parrott and Smith (1993, Study 2) found that hostility was closely associated with envy when participants rated the emotions that a protagonist would experience in an envy-provoking situation. Further evidence of the link between envy and ill-will comes from an investigation of how stereotypes and emotions shape behavioral tendencies toward social

groups (Cuddy, Fiske, & Glick, 2007). “Enviied groups” are thought to elicit “active harm”. Therefore, envy clearly translates into hostility, which can have potentially negative consequences for the target of envy.

Why is it that people envy, and why do they experience ill-will toward the envied? Clearly, it is not the comfort of experiencing envy that draws people toward it. Unlike other sins of greed, lust, and pride, envy does not yield any sort of pleasure. In fact, envy entails a *painful* awareness of differences between the envier and the envied (Leach & Spears, 2008). Furthermore, envy is regarded with extreme disapproval (Parrott & Smith, 1993). For example, out of 555 personality-trait words *envious* was found to rank 425th in terms of likeability (Anderson, 1968).

Envy is experienced because of a negative social comparison when the envier notices that a similar other, the envied, has something (e.g., material or personal) important that the envier wants but does not have (e.g., Salovey, 1991; Salovey & Rodin, 1984, 1991). Along similar lines, Smith and Kim (2007) defined envy as an unpleasant, often painful emotion characterized by feelings of inferiority, hostility, and resentment, *caused by* an awareness of a desired attribute enjoyed by another person or group of persons. As an alternative, Leach (2008) defined envy more narrowly as feelings of anger that occur with a desire for a felt desert possessed by another party. Thus, envy is unanimously agreed upon as an emotional consequence of an unfavorable upward social comparison where an individual becomes aware of the superiority of another. Although it makes sense that negative social comparison can elicit longing or desire and feelings of inferiority associated with envy, it is not clear why an envier should experience ill-will which could even lead to direct harming of the envied. The purpose of the current research was to provide novel insights into the links between envy, hostility and ill-

will. Specifically, two experiments explored the role that perceptions of injustice may have in shaping envious hostility and ill-will.

CHAPTER 2: LITERATURE REVIEW

Envy and Injustice

A potential explanation of hostility originating from envy is to consider a sense of injustice or some sort of resentment usually present in envy (Smith, 1991; Smith, Parrott, Ozer, & Monin, 1994). Although not an unchallenged view, envy as defined by Smith & Kim (2007) entails resentment. It is argued that as the experience of envy unfolds, the envier senses injustice: to some extent it is unfair to think that the envied should have an advantage desired by the envier. Smith and Kim (2007) suggest that the sense of injustice in envy is “subjective”, i.e., the superiority of the envied is perceived by the envier as unjust even though the advantage may be fair by social standards. So far, the most direct test of this idea has involved comparing impressions of subjective- and objective-injustice with other components of envy (Smith et al., 1994). In this study, subjective injustice was found to predict both envious hostility and depressive feelings. However, objective injustice only predicted hostility. Although there were limitations in the way in which subjective-injustice was operationalized, it is noteworthy that justice concerns were found to be related to hostility toward the target of envy. Therefore, a critical consideration in the present research was the role of perceived injustice in envy. The goal was to closely examine thoughts and feelings that accompany the experience of envy, with a special emphasis on perceptions of injustice. The primary objective of the research was to clarify the role of injustice perceptions in envy and to examine whether sensed injustice explains the link between envy and hostility.

Contrary to the above argument for inclusion of resentment in the definition of envy, Miceli and Castelfranchi (2007) strongly suggested that a sense of injustice is likely only a possible defensive outcome (emanating from a cognitive elaboration) of envy, and not its key

ingredient. These authors maintained that a sense of injustice should entail some attribution of responsibility or blame on the advantaged party (e.g., Rawls, 1971), which they do not view as necessarily implied in the case of envy. Such a conclusion also seems to follow from the work of Feather and Sherman (2002). In this study, participants read about a potential target of envy in a hypothetical scenario and reported the emotions experienced by them. A factor analysis of emotion ratings showed that resentment loaded on a different factor than did envy. Given that resentment was found to be distinct from envy, these data did not seem to suggest that sensed injustice is necessary for envy.

The critical question, then, is whether perceived injustice should be considered a key feature of envy or is it merely an explanation used by the envious to justify their hostility (Smith & Kim, 2007). The available evidence does not support one stand or the other. Although some suggest that perceived injustice is important for explaining envious hostility (Smith et al., 1994), others argue that perceived injustice is a component of resentment and not envy (Feather & Sherman, 2002). Attempts to reconcile these opposing views about the role of sensed injustice in envy might benefit from a closer look at the methodologies of Smith et al. (1994) as well as Feather and Sherman (2002). Smith et al. (1994) had participants write accounts of experiences in which they felt strong envy, and then indicate whether the envied advantage was subjectively unfair. Although the authors concluded that beliefs about injustice motivated envious hostility, such a conclusion might be hasty for at least two reasons. Firstly, the paradigm utilized for the study—recall of a past episode of envy—might systematically limit the findings of the study. For instance, the participant recalling the experience of envy might have already coped with depressive feelings and ill-will that were part of envy. Because the feeling of envy is undesirable, envious individuals likely find solace in thinking that if it were not for the injustice, they would

not have felt that way. So, it is plausible that participants in this study sensed injustice after the experience of envy in an attempt to legitimize the undesirable experience of envy and not at the same time when envy was experienced. Therefore, caution is recommended before any conclusion is made about what happened during the actual experience of envy. Secondly, the way in which subjective injustice was measured might have been problematic. The items used to measure subjective injustice (e.g., “It seemed unfair that the person I envied started out in life with certain advantages over me”) seem to capture a perception of unfairness of life in general. In that case there is no attribution of responsibility or blame on the advantaged party, which is necessary for resentment *proper* to be experienced (Miceli & Castelfranchi, 2007; Rawls, 1971). Therefore, it might be more appropriate to interpret the perceived injustice as being directed toward life in general and not toward the envied person or the relative disadvantage.

Although it is appropriate to question the role that a sense of injustice plays in envy given the limitations of Smith et al. (1994), some criticisms might also be premature. For instance, features of the findings reported by Feather and Sherman (2002) caution against accepting their viewpoint about the absence of perceived injustice in envy. These authors utilized a scenario-based paradigm to address hypotheses about resentment and envy. A principal components analysis on emotional responses to different scenarios showed that the item “...would like to be like the stimulus person” loaded on the factor called “envy”. Now, it is plausible that the scenarios instilled among the participants a motivation to improve themselves—an experience of “benign envy”. Benign envy denotes the type of envy that motivates envious people to remove differences with the envied through self-improvement and hard work (Van de Ven, 2009). It is qualitatively different from “malicious” envy, which is the actual focus of the current research (Van de Ven, Zeelberg, & Pieters, 2009). So, if Feather and Sherman (2002) found that a sense

of injustice does not load on the factor labeled “envy”, it might have been because the envy measured by them was “benign” envy, lacking hostility and ill-will. Therefore, these findings do not help settle the debate about the role that sensed injustice plays in (malicious) envy, and suggest a more systematic investigation is needed.

The Current Research

The key objective of the present studies was to create envy while manipulating perceived injustice and to examine the consequences of justice perceptions on feelings associated with envy. Very few studies have used a real envy episode to look at feelings accompanying envy and none have manipulated perceived injustice in an upward social comparison context to understand its effect on envy. The proposed research, therefore, was aimed at increasing our understanding of the role that sensed injustice plays in the experience of envy, therefore potentially informing debates about how best to define the emotion.

Creating Envy. According to Smith (2000), envy arises in the event of an upward social comparison on a self-relevant domain with a superior other who is similar in a general sense. Therefore, the proposed research employed a comparison context with two individuals. In both studies, outcomes on a self-relevant task were such that one individual turns out as superior to the other. In the first study, participants were asked to imagine a situation in which another individual receives a higher reward than them, although both performed similarly. In the second study, pairs of participants took an important test and bogus feedback was used to make one participant seem more talented than the other.

Manipulation of injustice. Unlike Smith et al. (1994), the current research does *not* distinguish between objective and subjective injustice. Smith et al. (1994) had participants recall and describe a previous episode of envy and separately assess the objective unfairness (e.g.,

“Anyone would agree that the envied person’s advantage was unfairly obtained.”) and the subjective unfairness (e.g., “It seemed unfair that the person I envied started out in life with certain advantages over me”). However, the concern in the present research was what people think is fair and unfair—judgments that are ultimately subjective (Mikula & Wenzel, 2000; Tyler et al., 1997). Therefore, beliefs about fairness were assessed through global perceptions of fairness, regardless of whether these perceptions would earn social consensus.

The approach to fairness concerns employed in the current research was based on past research on justice perceptions. Lind and Tyler (1988, see also Lind, Kulik, Ambrose, & De Vera Park, 1993) suggested that fairness judgments can either be based on the outcome of an event (distributive justice), or on the procedure with which the outcome is obtained (procedural justice). Note that distributive (in)justice is always implied in envy because envy requires an upward social comparison where the outcomes for an individual are not as favorable as they are for another (i.e., the other is superior). But, this does not necessarily mean that perceived injustice is inherent in envy. As shown by Van den Bos, Vermunt and Wilke (1997), fairness judgments often depend on what kind of information about fairness is initially the most salient. These researchers found that judgments of fairness are informed by the *procedure* when information about procedure precedes information about the outcome, whereas the same judgments are informed by the *outcome* when information about the outcome appears prior to procedural information. For example, when an individual is aware that the procedure used to determine outcomes is fair, the outcome (even if unequal) is considered fairer relative to the case when outcome information becomes available before information about the procedure. So, just because outcomes are not favorable for the envier, the manipulation of justice is not obviated. Perceived fairness can potentially be manipulated through the procedure used to determine

outcomes and by presenting procedural information before information about outcomes is made available. To better understand the role played by perceived procedural and distributive justice concerns, however, participants' reactions to both procedure and outcome were solicited in the current studies.

The two conditions in the current studies were labeled as the "fair" and the "unfair" condition. The *procedure* used to decide outcomes was manipulated to create different levels of fairness. For instance, participants in the first study read hypothetical scenarios in which they received smaller rewards than another person. In the "fair condition" the rewards were decided in a very just fashion: both individuals got the opportunity to voice their opinion about how the rewards should be allocated between the two individuals and their work samples and opinions of other colleagues were considered. In the "unfair condition", the rewards were determined based on a quick assessment that did not involve proper consultation with both individuals. This is a modified version of the voice/no-voice paradigm used by Van den Bos et al. (1997). As observed by these researchers, it was expected that fairness of procedure would translate into fairness judgments made by participants because information about the procedure preceded outcome information. In study 2, justice was manipulated through different levels of fairness of a test-taking procedure. Participants (in pairs) took an "important" test. Bogus feedback was used to create relative inferiority. Participants in the "fair" condition got time to practice taking the test before they actually took it. Participants in the "unfair" condition did not get the opportunity to work on a practice test; in addition, they were told that their co-participant got the time to take a practice test. Lastly, both studies (1 and 2) utilized perceived procedural fairness and satisfaction with the procedure to assess feelings of injustice, as done in previous studies (Van den Bos & Lind, 2002; Van den Bos et al., 1997; Van den Bos, 2001).

Hypotheses: The perceived injustice view. The first set of hypotheses was derived from the view that the experience of envy entails perceived injustice. As the experience of envy unfolds, the envier senses some injustice, as suggested by Smith and Kim (2007). This view will be referred to as the “perceived injustice view”. This perspective would suggest that as upward social comparisons become increasingly unfair, more and more envy will be experienced. With an increase in unfairness, participants might experience heightened inferiority (as they ask themselves “what did I do wrong”), stronger resentment, and anger (because unfairness makes the inequality even more upsetting). Therefore, it was hypothesized that as the fairness of procedure decreases across the conditions, participants would report stronger envy. Apart from envy more generally, its components (e.g., hostility, dejection, and resentment) were also measured in both studies. It was hypothesized that stronger hostility, dejection and resentment toward the envied would be experienced with an increase in unfairness.

Mediating effect of fairness judgments. To test the idea that perceived unfairness motivates envious hostility, it was crucial to examine the potential mediating role of fairness judgments in the effect of procedural fairness on envy and its components. If there is a mediation effect, then the relation between condition and envy should become weaker when perceived injustice is used as a predictor of envy. However, in the absence of a mediation effect, the link between condition and envy should remain unaffected when perceived injustice is also used to predict envy. Three hypotheses were tested as part of the mediation analyses. Firstly, it was hypothesized that condition will predict envy and its components; there should be a positive relation between condition and envy (and its components). Secondly, it was hypothesized that condition will predict fairness judgments (procedural fairness and satisfaction with the procedure). Thirdly, it was hypothesized that fairness judgments will be *negatively* related to

envy, and in a regression equation the link between condition and envy (and its components) will be weaker when fairness judgments are also used as a predictor (see Baron & Kenny, 1986).

Envy and the search for an explanation

The “perceived injustice view” discussed earlier suggests that a sense of injustice constitutes the experience of envy and it implies that information about justice becomes salient very early during the envious episode. In strong contrast to the “perceived injustice view”, it might also be the case that fairness information does not become salient until the envier actively seeks it. For instance, Miceli and Castelfranchi (2007) suggested that unfavorable comparison triggers a quest for an explanation (“why her and not me?”). This attributional search can be traced back to general motivational principles such as adaptation and survival (Berlyne, 1960) or achieving mastery over the environment (Heider, 1958). Thus, after being faced with an upward social comparison, the inferior person likely tries to determine the reason for the disparity. For the purpose of the current research, this view will be referred to as the “attributional search view”. It leads to a completely different set of hypotheses about the role of perceived unfairness, which will be addressed shortly.

The attempt to look for an explanation of relative disparity can have at least two different outcomes. Either the inferior individual can learn something about the envied that led to the advantage (“if it weren’t for her superiority, I wouldn’t be inferior”), or the quest for a cause can emphasize own inferiority (“if it weren’t for my little value, I wouldn’t be inferior”). At times, though, it can be really difficult to pin-point a cause of the relative (dis)advantage. For example, attributes such as intelligence, physical attractiveness, and musical ability can seem arbitrarily bestowed—“that’s just how it is” (Smith & Kim, 2007). Such a realization can itself be frustrating, and might cause perceptions of loss of control. In this light, the different levels of

procedural fairness are now expected to have a different effect. It is plausible that perceived (un)fairness serves as an explanation of the unequal outcomes. When the procedure used to determine outcomes is unfair, the relative disadvantage can be attributed to unfairness. When this happens, the inferior individual is more likely to experience the full-blown emotions of resentment proper and indignation rather than envy (e.g., Neu, 1980; Walker & Smith, 2002). On the contrary, when it is not possible to attribute the superiority of the envied to anything (because the procedure is fair), the envier might feel even more frustration and loss of control which give rise to stronger envy. Whether envy is an outcome of a frustrated search for an explanation is still an untested idea examined for the first time in the current research.

Hypotheses: Attributional search view. This next set of hypotheses arises from the view that as the fairness of procedure decreases, participants will find it easier to attribute the relative advantage of the superior individual to situational unfairness. Conversely, higher procedural fairness will make it difficult to explain the relative disadvantage, which might lead to perceptions of loss of control, dejection, and more envy. Accordingly, it was hypothesized that envy would become stronger as the fairness of procedure increases. Note that this is in strong contrast with the “perceived injustice view” which predicts that envy would be stronger when procedural fairness is low.

Mediating effect of fairness judgments. To test the idea that lack of an explanation for relative disadvantage motivates envious hostility, it was again crucial to examine the mediation of the link between condition and envy by fairness judgments. Hypotheses relevant to the mediating effect were similar to the mediation hypotheses discussed under the “perceived injustice view” of envy. However, different results were expected in this case. Firstly, a negative relation between condition and envy was expected because the “attributional search view” posits

that envy is expected to increase with increase in fairness of procedure. Secondly, a *positive* relation was expected between fairness judgments and envy, and in a regression equation the link between condition and envy was expected to be weaker when fairness judgments are also used as a predictor (see Baron & Kenny, 1986).

Envy and the target of anger

The way in which procedural fairness was manipulated (in the current research) allowed for an extension of the above hypotheses to the individual responsible for the injustice. Both study 1 and 2 utilized an influential third party apart from the envier and the envied. This third party was the agency that meted out justice, or perpetrated injustice by allocating resources in a just or unjust fashion. Therefore, anger, hostility and ill-will can be directed toward either of two different targets, the envied or the external agency. For example, the “supervisor” in the scenarios of study 1 created an unfavorable social comparison context by unequal allocation of resources. It is plausible that the anger felt by the envier can be directed toward the external agency (who was actually responsible for creating the disparity in the first place), as well as toward the envied (who is a reminder of the relative lack of the envier and the unjust beneficiary of injustice). The presence of an external agent as a potential target of anger made the current research unique. Very few studies have used contexts that directly relieve the envied from the burden of responsibility for their relative advantage.

Interestingly, the “perceived injustice view” and the “attributional search view” yield contrasting hypotheses about anger toward the target of envy. According to the “perceived injustice view”, the envier is expected to perceive injustice very early on as the episode of envy begins. Therefore, anger experienced by the envier might be motivated by justice concerns (more unfairness might lead to more anger). On the other hand, the “attributional search view” posits

that individuals who encounter an unfavorable social comparison search for an explanation of their relative disadvantage. When the procedure is fair, unfairness is no longer an explanation for the relative superiority of the envied. In such a case, the envier might conclude that the envied must be really better than them (Miceli & Castelfranci, 2007) which could likely add to the perceptions of loss of control and cause more anger toward the envied (i.e., more unfairness might lead to *less* anger). Thus, testing of hypotheses about target of anger will likely shed more light on the hostility in envy, and at the same time provide another way to examine and compare the two views.

Hypotheses: Target of anger. As noted above, there are two potential targets of anger—the envied individual, and the external agency perpetrating injustice. According to the “perceived injustice view” of envy, the prediction for anger toward the external agency is based on resentment: higher the injustice, greater the anger (Mikula, 1986). Therefore, it was hypothesized that anger toward the external agency would intensify as procedural fairness decreases (or, injustice increases). This translates into expected negative correlations of anger toward the external agency with both perceived fairness and satisfaction with the procedure. The prediction for anger toward the envied was slightly more intricate. Notably, the envied was but a blameless beneficiary of injustice perpetrated by the external agency. As such, there is no direct reason for anger toward the envied. It was hypothesized that anger toward the envied might emanate from association, based on the excitation transfer hypothesis (Zillmann, 1971). Therefore, anger toward the envied was expected to follow a similar pattern as anger toward the external agency (i.e., increase with a decrease in procedural fairness). Finally, it was expected that anger toward the external agency might be stronger than anger toward the envied. This is because the external agency was the actual perpetrator of injustice (“the real culprit”).

The “attributional search view” led to similar predictions for anger toward the external agency. When the envier tries to explain own relative disadvantage, unfairness serves as a readily available answer. Acknowledgment of the unfairness likely entails awareness of the role of the external agency in perpetrating the injustice. Therefore, it was expected that anger toward the external agency would increase with decreases in procedural fairness. Unlike in the “perceived injustice view”, however, the expected trend for anger toward the envied is not the same as that for anger toward the external agency. When the envier is unable to use unfairness as an explanation for the inequality, the most likely conclusion is that the envied “must be really better” (Miceli & Castelfranchi, 2007). The frustrations emerging from a stronger realization of own inferiority tend to suggest that anger toward the envied might be strongest when the procedure is fair. However, when the procedure is unfair the disparity can be attributed to unfairness with fewer implications about own inferiority, resulting in less frustration and anger. Therefore, it was hypothesized that anger toward the envied will increase with increase in procedural fairness. Also, it was expected that anger toward the envied will be stronger than anger toward the external agency. These hypotheses stand in clear contrast to the “perceived injustice view”.

Components of Envy

One of the strengths of the current research was the way in which envy was measured, i.e., different components of envy (e.g., inferiority, depressive feelings, hostility, and ill-will) were measured. Most studies of envy do not focus on its components (Cohen-Charash & Mueller, 2007; Feather & Sherman, 2002; Gino & Pierce, 2009) and therefore the content validity of envy measured in these studies is unclear. In the current research, components of envy were measured in both studies, and were subject to analysis. Therefore, it was possible to more

accurately capture the richness of this complex emotion. It was also hoped that analysis of the components of envy would contribute to the debate about the definition of envy. Smith and Kim (2007) argued for the inclusion of inferiority, hostility and resentment in the definition of envy, whereas Leach (2008) recommended limiting envy to a mere combination of desire and anger. Through examination of inter-correlations between the different components of envy, the studies should inform the debate on the necessary components of envy.

Summary

The proposed research aimed to test some controversial issues regarding the nature of envy. This was the first research to experimentally manipulate injustice in an upward comparison context in order to examine its effects on envy and relevant emotional components (i.e., depressive feelings, hostility, and resentment). The “perceived injustice view” assumes a critical role of sensed injustice in envy. Thus, hypotheses based on this view examine whether envy and its components become more intense as perceived injustice increases (or perceived fairness decreases). The “attributional search view” suggests that envy emerges from a frustrated search for an explanation in an upward comparison context. Thus, when a fair procedure is used (vs. an unfair procedure) to allocate resources, it is more difficult to explain the relative advantage of the superior individual. Hence, the resultant envy is expected to be greater. The final set of hypotheses was an attempt to further distinguish the two views by focusing on the anger component of envy. If envy is driven by perceptions of injustice, anger toward the envied should not be as strong as anger toward the external agency (the actual perpetrator of injustice). However, if envy is an outcome of a frustrated search for an explanation, the reverse order should be expected as fairness in the situation would emphasize the superiority of the envied (and the inferiority of the envier).

CHAPTER 3: STUDY 1

Overview

Participants read and responded to information presented by means of scenarios. The scenarios informed them about a procedure that led to an unequal outcome. A modified version of the voice/no-voice paradigm (Van den Bos et al., 1997) was utilized to create two levels of procedural justice. When the paradigm is used in its usual form, the voice condition is the “fair” condition, whereas the no-voice condition is the “unfair” condition. In the voice condition, participants have a say in determining an outcome relevant to them. However, in the no-voice condition participants have no opportunity to share their opinion about the outcome. The two levels in this study were slightly different from the two levels of the typical voice/no-voice paradigm. Participants in the fair condition (similar to “voice” condition) were asked to imagine that they were allowed an opportunity to voice their opinion. In addition, other measures were taken to make the situation extremely fair (e.g., “thorough assessment of work samples to determine bonuses”) Participants in the unfair condition (similar to “no-voice” condition) were asked to imagine that whereas their comparison other in the scenario got an opportunity to voice their opinion, they did not. The situation in the unfair condition was also unfair in additional ways (e.g., “a quick assessment was made to determine bonuses”). Outcome information was the same across all conditions: participants were told that their outcomes were worse than those of the other person in the scenario. Participants’ procedural (and outcome) fairness judgments, their procedural (and outcome) satisfaction judgments, and their emotional reactions (like envy, hostility/ill-will, depressive feelings, etc.) were the dependent variables.

Method

Participants. Two hundred and thirty two participants (55% female, 2% unidentified) were recruited from a large Midwestern university. Participants earned research credit toward a course requirement as compensation for their participation.

Design. Participants were randomly assigned to either the “fair” or the “unfair” condition. The study was administered online.

Procedure. After participants signed up for the study, weblinks to the online study were provided to them. Participants were told that the study was about interpersonal thoughts. They were told that the experimenters were interested in studying reactions to certain situations that are fairly common in the workplace. Each participant read a scenario (see Appendix A). They were asked to imagine that they were in the situation described in the scenario where they worked as a summer intern at a “dream company” and they wanted to make the most of it. Participants were also told that in the scenario there was another intern from their university who worked as their team-mate. Furthermore, the company made good profits at the end of the summer; the supervisor for the team of interns was responsible for allocation of a bonus to every intern. Scenarios in both conditions were identical except for information about procedural fairness, which was presented next. Procedural fairness was manipulated through information about how the amount allocated to each employee was determined. Participants in the “fair” condition were told that their supervisor made a very thorough attempt to determine bonuses, the opinions and work samples of each intern were considered among other things. Participants in the “unfair” condition were told that their supervisor made a quick assessment, not only was their opinion not considered, but the other intern was consulted before allocation of the funds, etc.

After the manipulation of procedural justice, outcome information was provided.

Participants read the following sentences:

“A week after this, employees were paid. Based on the supervisor’s assessment, you received a bonus of 300 Dollars. Your fellow student received a bonus of 400 Dollars.”

After reading the scenarios, participants answered questions pertaining to the dependent variables. Procedural fairness judgments were solicited by asking how fair they considered the procedure used to assess bonuses received by them and their fellow student. Procedural satisfaction was assessed by asking participants how satisfied they were with the procedure used to determine the bonuses received by them and the fellow student. Outcome fairness judgments were solicited by asking how fair they considered the bonuses allocated to them and their fellow student. Outcome satisfaction judgments were solicited by asking how satisfied they were with the bonuses received by them and their fellow student. All ratings were made on 7-point Likert-type scales (see Appendix 2).

Subsequently, participants completed a 32-item scale (Appendix 3a) that has previously been used to measure envy and its components of depressive feelings, inferiority, anger, and hostility/ill-will (Johar & Krizan, 2010). They were asked to rate the intensity with which they experienced different emotions toward the fellow student on 12-point scales (0=not at all, 11=great amount). Instead of single items, groups of roughly three to four items on the scale were used to assess envy and its components. Envy was measured as the aggregate response to “envious of”, “jealous of” and “resentful envy toward”. Dejection was the aggregate response to “inferior to”, “self-lacking” and “depressed”. Hostility was the aggregate of “cold toward”, “annoyed by”, “hostile”, “frustrated by”, “disgusted by” and “angry at”. Resentment was the aggregate of “resentful”, “indignant toward”, “grudge against” and “contempt for”. Admiration

was the aggregate of “liking for”, “happy for”, “warm respect for”, “admiring”, “inspired by” and “pleased for”. Participants then completed the episodic envy scale (Cohen-Charash, 2009, see Appendix 3b). As an additional measure of indirect hostility, participants also completed an “initial impression questionnaire” (Appendix 6b), which allowed them the opportunity to derogate the envied individual.

To measure feelings directed toward the external agency (the supervisor), participants were asked to rate the extent to which they experienced anger, hostility, annoyance, frustration, and disgust toward the supervisor, on a scale of 0 to 11 (0=not at all, 11=great amount).

Results

Manipulation checks. Fairness judgments in the “fair” condition were much higher than the “unfair” condition. As shown in Table 1, a main effect of condition was found on judgments of fairness of procedure. Other fairness judgments like fairness of bonus and satisfaction with procedure/bonus also showed a main effect of condition. (p 's <0.001). It is interesting to note that participants reported greater satisfaction with the same unequal bonus when the bonuses were allocated fairly (vs. unfairly).

Emotional reactions toward the superior target. Reactions to the manipulation of fairness have been reported in Table 2. Participants in the “unfair” condition reported more envy (envy index and the episodic envy scale) than in the “fair” condition. However, both effects were only marginally significant (p 's <0.10). In contrast, hostility ($d=-.470$) and resentment ($d=-.364$) components of envy showed a clear effect of manipulation (p 's <.01). Also, participants in the “fair” condition reported higher admiration ($d=.448$, $p<.01$) for the envied. Therefore, participants reported more hostility and resentment toward the target of envy when the procedure used to determine outcomes was unfair (vs. fair).

Table 1.

Manipulation checks as a function of Procedural fairness in Study 1 (N =227)

| | Low-Fairness (n = 110) | | High-Fairness (n = 117) | | <i>d</i> | Results of ANOVA | |
|-----------------------------|------------------------|-----------|-------------------------|-----------|----------|------------------|--------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | F (1,227) | p>F |
| Fairness of procedure | 2.4 | 1.355 | 4.4 | 1.664 | 1.326 | 99.98 | <.0001 |
| Satisfaction with procedure | 2.1 | 1.184 | 4.1 | 1.655 | 1.336 | 100.47 | <.0001 |
| Fairness of bonus | 2.8 | 1.227 | 3.7 | 1.463 | 0.659 | 24.71 | <.0001 |
| Satisfaction with bonus | 2.9 | 1.440 | 3.6 | 1.416 | 0.464 | 12.25 | <.0001 |

Table 2.

Emotional reactions as a function of Procedural fairness in Study 1 (N =227)

| | Low-Fairness (n = 110) | | High-Fairness (n = 117) | | <i>d</i> | Results of ANOVA | |
|---------------------|------------------------|-----------|-------------------------|-----------|----------|------------------|-------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | F (1,227) | p>F |
| Emotional Reactions | | | | | | | |
| Envy Index | 6.5 | 2.556 | 5.9 | 2.636 | -0.237 | 3.20 | .0749 |
| Dejection Index | 4.8 | 2.217 | 4.4 | 2.182 | -0.193 | 2.13 | .1458 |
| Hostility Index | 5.7 | 2.348 | 4.7 | 2.501 | -0.470 | 12.63 | .0005 |
| Resentment Index | 5.1 | 2.149 | 4.3 | 2.244 | -0.364 | 7.56 | .0064 |
| Admiration Index | 4.4 | 1.653 | 5.2 | 2.034 | 0.448 | 11.42 | .0009 |
| Episodic Envy Scale | 4.5 | 1.614 | 4.1 | 1.575 | -0.244 | 3.42 | .0657 |
| Anger_supervisor | 6.8 | 2.618 | 5.3 | 2.928 | -0.522 | 18.02 | .0001 |

Mediation analysis. Tables 3 and 4 shed light on the mediating role of fairness perceptions in the link between condition and envy. The first column of table 3 shows the effect of condition on fairness perceptions and emotional reactions. Thus, condition predicted fairness perceptions and envious reactions, with the exception of dejection. Further, fairness perceptions predicted envious reactions (column 2 of Table 3), again with the exception of dejection. Also, regression models with condition and perceptions of fairness as predictors of emotional reactions have been reported in Table 4. The effect of condition fails to be significant when perceptions of fairness of procedure are taken into account. Finally, Sobel test (Krull & MacKinnon, 1999) was also used to test for mediation. Test-statistics were significant in case of envy, hostility and resentment with the exception of dejection (see Table 4). Thus, there is a clear case of mediation.

Derogation. Participants' impressions of the envied individual were measured to assess derogation of the envied individual. Ratings of the envied on different characteristics suggested more derogation of the envied in the "unfair" condition (Table 5). Compared to the "fair" condition, participants in the "unfair" condition rated the envied individual as more selfish, self-centered, conceited and dishonest (d 's between $-.484$ and $.736$, p 's <0.001) but less friendly, genuine, gifted, trustworthy and moral (d 's between $.350$ and $.573$, p 's <0.01). Therefore, participants in the "unfair" condition evaluated the envied individual more negatively.

Anger toward the supervisor. Participants in the "unfair" condition reported much more anger toward the supervisor compared to the "fair" condition (Table 2). As shown in Table 3, anger toward the supervisor was negatively correlated with judgments of fairness of procedure, but positively (and very strongly) correlated with envy and its components of dejection, hostility and resentment. Thus, lower fairness was associated with more anger toward the supervisor,

Table 3.

Correlations between Fairness Judgments and Emotional Reactions in Study 1 (N = 227)

| Measure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------------------------|---------|---------|----------|----------|----------|----------|----------|----------|----------|
| 1 Condition | 1.000 | | | | | | | | |
| 2 Fairness of procedure | .553** | 1.000 | | | | | | | |
| 3 Envy | -.118† | -.182** | .849 (3) | | | | | | |
| 4 Dejection | -.096 | -.100 | .651** | .684 (3) | | | | | |
| 5 Hostility | -.230** | -.269** | .723** | .619** | .920 (6) | | | | |
| 6 Resentment | -.180** | -.220** | .727** | .632** | .857** | .820 (4) | | | |
| 7 Admiration | .219** | .348** | -.065 | .041 | -.239** | -.111† | .873 (6) | | |
| 8 Episodic Envy Scale | -.122† | -.177** | .774** | .686** | .788** | .780** | -.137* | .879 (9) | |
| 9 Anger at Supervisor | -.253** | -.333** | .603** | .463** | .687** | .659** | -.229** | .676** | .954 (8) |

Note. †0.05<p<0.10, *p<0.05, **p<0.01. Cronbach's alphas have been reported along the diagonal with the number of items in parentheses wherever applicable.

Table 4.

Standardized Regression Table: Emotional Reactions predicted by Condition and Fairness Judgments in Study 1 (N = 227)

| Model | Dependent Variable (DV) | β (se) | | R-Square | Sobel test (mediation of condition-DV link by judgments of procedural fairness) | |
|-------|-------------------------|-----------------|-------------------|----------|---|---------|
| | | Condition | Fairproc | | Test statistic | p value |
| 1 | Envy | -.064 (.205) | -.440 (.205)* | .034 | 2.691 (.195) | .007 |
| 2 | Dejection | -.130 (.175) | -.150 (.175) | .012 | 1.504 (.162) | .132 |
| 3 | Hostility | -.290 (.190) | -.508 (.190)** | .082 | 3.874 (.190) | <.001 |
| 4 | Resentment | -.187 (.173) | -.386 (.173)* | .053 | 3.212 (.168) | .001 |

Note. †0.05 < p < 0.10, *p < 0.05, **p < 0.01. Numbers in parentheses are standard errors

Table 5

Impressions of the Envied as a function of Procedural Fairness in Study 1 (N =227)

| Impressions | Low-Fairness (n = 110) | | High-Fairness (n = 117) | | <i>d</i> | Results of ANOVA | |
|---------------|------------------------|-----------|-------------------------|-----------|----------|------------------|--------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | F (1,227) | p>F |
| Selfish | 5.9 | 2.705 | 4.6 | 2.642 | -0.486 | 13.24 | .0003 |
| Self Centered | 6.4 | 2.816 | 4.9 | 2.703 | -0.543 | 15.54 | .0001 |
| Conceited | 5.8 | 2.726 | 4.5 | 2.643 | -0.484 | 13.08 | .0004 |
| Dishonest | 5.6 | 2.982 | 3.6 | 2.426 | -0.736 | 32.57 | <.0001 |
| Friendly | 6.6 | 2.194 | 7.4 | 2.374 | 0.350 | 7.08 | .0083 |
| Genuine | 5.5 | 2.260 | 6.6 | 2.486 | 0.463 | 13.54 | .0003 |
| Gifted | 6.5 | 2.216 | 7.5 | 2.389 | 0.434 | 11.82 | .0007 |
| Trustworthy | 5.6 | 2.429 | 7.0 | 2.460 | 0.573 | 18.73 | <.0001 |
| Moral | 5.5 | 2.389 | 6.8 | 2.466 | 0.535 | 17.77 | <.0001 |

Table 6.

Correlations between Fairness Judgments and Emotional Reactions in Study 1 (N = 227)

| | Condition | Envy | Dejection | Hostility | Resentment | Admiration |
|-----------------------------|-----------|----------|-----------|-----------|------------|------------|
| Fairness of procedure | 0.553** | -0.182** | -0.100 | -0.269** | -0.220** | 0.348** |
| Satisfaction with procedure | 0.555** | -0.196** | -0.068 | -0.265** | -0.204** | 0.383** |
| Fairness of bonus | 0.313** | -0.276** | -0.169* | -0.372** | -0.306** | 0.272** |
| Satisfaction with bonus | 0.227** | -0.305** | -0.218** | -0.373** | -0.338** | 0.233** |

Note. †0.05<p<0.10, *p<0.05, **p<0.01.

which was associated with stronger envy and other component emotions. Finally, a paired sample t-test was conducted to compare anger toward the supervisor and toward the envied. Results were significant; $t(228)=9.44$, $p<.0001$, 95% CI = 1.11 – 1.70. Therefore, participants reported much more anger toward the supervisor.

Components of envy. Correlations between envy and its components of dejection, hostility and resentment have been reported in Table 3. Envy was found very strongly correlated with the component emotional reactions. In general, admiration was uncorrelated with envy and its components, with the exception of hostility

Discussion

Multiple measures of fairness perceptions strongly suggested that fairness was successfully manipulated in the online experiment. Participants' ratings of fairness of procedure were more than one standard deviation higher in the fair condition compared to the unfair condition.

Support for a link between emotional reactions and the manipulation of fairness is mirrored in correlations with fairness perceptions. As evident in Table 3, all emotional reactions (with the exception of dejection) were predicted by fairness judgments. Mediation analysis (Baron & Kenny, 1986) provided further support for the effect of condition on envious reactions via fairness judgments. Taken together, there is support for a weak relation between (un)fairness and envious hostility.

Measurement of envy along with component emotional reactions gave a panoramic view of the feelings experienced by participants. Participants in the unfair condition reported higher anger toward the supervisor, but also higher hostility and resentment toward the superior teammate. Reports of envy were affected only slightly, while feelings of dejection and inferiority

did not seem to be affected by the manipulation of fairness. Thus, participants clearly reacted with *more* hostility and resentment toward the envied individual when the latter earned the advantage under unfair circumstances. This is a notable finding because this individual was presumably not culpable for their advantage (i.e., it was the supervisor that acted unfairly). Although there was only a weak tendency to directly report more intense “envy” as a function of procedural fairness, these findings suggest that a sense of unfairness inherent in a comparison situation is important in shaping invidious reactions toward the advantaged, regardless of the role played by the superior party in obtaining the advantage.

The hostile nature of envy was clearly evident in participants’ perceptions of the envied individual. The superior other was rated as more selfish, self-centered, conceited and dishonest, but less friendly, genuine, gifted, trustworthy and moral in the unfair condition than in the fair condition. This was true even though participants had very little information, and the information they had was largely positive or neutral. It is implied that envy felt by participants was truly malignant and not benign. As a matter of fact, admiration was uncorrelated with reports of envy.

That the source of envy lies in judgments of unfairness is further supported by anger toward the supervisor. Not only did participants experience more anger toward the supervisor in the unfair condition, but reports of anger were very strongly related with reports of envy, dejection, hostility and resentment. Also, participants reported more anger toward the supervisor than toward the envied.

Did the presence of unfairness lead to envious hostility (“perceived injustice view”) or was it the absence of fairness (“attributional search view”)? Not only did participants report higher negative reactions of envy, hostility and resentment, they also perceived the envied target more negatively in the unfair (vs. fair) condition. Therefore, participants in the unfair condition

experienced stronger envious hostility. As such, data were consistent with the “perceived injustice view”. According to this perspective, higher unfairness gives rise to stronger feelings of anger and also inferiority (because envious individuals can conclude they might have done something wrong to deserve the unfair treatment). On the contrary, the “attributional search view” holds that absence of unfairness makes it difficult for the envied to explain the relative advantage, which leads to greater perceptions of loss of control, hence, more envy. This latter view was not supported by the data.

Finally, very strong correlations between envy and reports of dejection, hostility and resentment add to the understanding about the definition of envy. Data supported a broader conceptualization of envy as a painful awareness of a relative disadvantage marked by feelings of inferiority, hostility and resentment (Smith & Kim, 2007).

CHAPTER 4: STUDY 2

The objective of the second study was to replicate the findings of study 1 and to extend them to a more consequential context. In Experiment 1 participants responded to a hypothetical situation presented in a scenario. Whether similar results would be obtained when participants get exposed to a situation in which they actually experience envy and unfairness is a valid concern. To provide a more stringent test of the hypotheses, procedural fairness was again manipulated in an upward social comparison context, but this time involving an ongoing comparison experience. Equity theory and other distributive theories emphasize the importance of social comparison information in the process of evaluating outcomes (Messick & Sentis, 1983; Van den Bos & Lind, 2002). In order to simulate a real envy experience, in Experiment 2 participants compared themselves with another person who was present in the lab with them (the study was conducted with two participants per session). The other person was similar to the participant (only same-sex participants were recruited for any given experimental session, and both were undergraduate students at the same university). The hypotheses were tested by manipulating the fairness of the procedure, similar to study 1.

Overview

Participants competed with each other in a bogus test of creativity. To make the comparison important, participants were told that scores on the test predict occupational success, and they would have a chance to win tickets to a lottery (the participant with the higher score will win more tickets). Similar to Study 1, there were two levels of procedural justice. Procedural justice was manipulated by giving or not giving an opportunity to work on sample problems before the test of creativity was administered. Participants in the fair condition were able to work on practice problems; participants in the unfair condition were not. Critically, participants in the

unfair condition were led to believe that their co-participant got the opportunity to practice before taking the test (thus potentially earning the co-participant an unfair advantage).

Outcome information was the same across all conditions: All participants were told that they did worse on the test than the other individual. Participants' procedural fairness judgments, procedural satisfaction judgments, emotional reactions, and attributions of disadvantage were the dependent variables.

Although the availability of fairness information and its use to judge procedural fairness are implied, whether participants use fairness information to explain the relative lack is worthy of further exploration. To this end, two more hypotheses were examined in Study 2 as a stronger test of whether participants used fairness information when interpreting their disadvantage. As procedural fairness increases, participants might find it more difficult and frustrating to explain the superiority of their fellow participant because unfairness will no longer be a valid explanation. Therefore, it was hypothesized that attributions of the relative disadvantage to procedure might increase with a decrease in procedural fairness. It was also hypothesized that the attribution reports would be correlated with envy (and its components). However, contrary views about the role of injustice would predict different directions of the correlation coefficients. The "perceived injustice view" would predict a positive correlation because more unfairness might translate into more envy through an acknowledgment of the unfairness. However, the "attributional search view" would predict a negative correlation. This is because when participants do not use "unfairness" as an explanation, envy would be expected to be higher because of perceptions of loss of control.

Method

Participants. Seventy participants (74% female) were recruited from a large Midwestern university. Participants earned research credit toward a course requirement as a compensation for participation. Equal number of males and females were recruited for the study. Both participants in any one session participated in same-sex pairs.

Design. Participants were randomly assigned to one of the two conditions of the procedural fairness: fair and unfair.

Procedure. Participants were invited to the laboratory to participate in a study about “creativity and task performance”. Every experimental session had two same-sex participants. On arrival at the laboratory, participants were introduced to each other and were informed that in the study they would compete with each other. Participants were told that they would take a test of creativity that predicts occupational success and creativity—the Remote Associates Test (Appendix 4). It was hoped that participants would be invested in comparing their score on the test with that of their fellow participant. The following steps were taken to strengthen the comparison context.

Anticipation of a group-based task. Participants were told that after taking the creativity test they would participate in a group-based task (which was called “Creativity in daily life”), and they would be assigned roles in the group task on the basis of their test scores: the individual with the higher score would play the role of the supervisor. They were told that the objective of the group-based task was generation of novel usage for traditional objects; the supervisor would select the groups of objects (a short and easy task), whereas the subordinate person would come up with the actual creative uses (long and laborious task). They were also told that the goal of the

study was to validate the test of creativity by analyzing their performance on the group-based task. Finally, they were told that it was crucial that they take the test of creativity very seriously.

Anticipation of a lottery. Participants were also led to believe that as an incentive for doing well on the test, they would receive tickets to a lottery. They were told that for working on all the problems they would get three lottery tickets each and the person with the higher score would receive two more tickets. Furthermore, they were informed that the lottery would be held after the study was complete; the winner of the lottery would receive 100 US Dollars.

Participants were told that a total of 200 lottery tickets would be distributed among all participants. Five practice questions were posed to ensure comprehension of the lottery. Every time a participant gave a wrong answer to a question, the correct answer was disclosed and main characteristics of the lottery were repeated.

After providing information about the group-based task and the lottery, the Remote Associates Test was explained to the participants (Mednick & Mednick, 1967) and it was stressed that it was an important test that predicts occupational success. Every question on the test included three words. The participant had to think of a fourth word that is similar in meaning to each of the three words. At this point, participants were led to different rooms.

Manipulation of procedural justice. As in the case of Study 1, there were two levels of procedural justice. Participants in the “fair condition” were given some practice problems to work on before they took the actual test. To them, the experimenter said, “We think it will be fair to give you a chance to familiarize yourself with the test before taking it. Please take your time to look at these sample problems (presented separately)”. Participants in the “unfair” condition were not given sample problems to work on. To them the experimenter said, “It will be fair to have you work on some practice questions before taking the test. (Pretending to look confused)

According to the procedure, I should have had an extra practice sheet! But, I had only one which I gave to the other participant.” Participants then worked on the test. As in Study 1, the other individual was not responsible for the potential advantage they could incur via unjust procedures.

After participants took the test, they were told that lottery tickets would be distributed between the two of them. Subsequently, participants were asked to think for 1 minute about the percentage of lottery tickets that they thought they should receive relative to other and to write down this percentage on a piece of paper. In this way, it was possible to verify whether or not participants expected an equal distribution of lottery tickets. Participants were informed that at the end of the experiment the pieces of paper would be thrown away.

Unfavorable social comparison. Participants graded their responses using a key provided by the experimenter. A very difficult version of the test was used to ensure that participants would score very low. The mean score on the test was 0.97 on a scale of 10. Scores were not significantly different across conditions ($F(1,69)=1.837, p = .18$). After a participant graded own responses, a fake scoring-sheet was given, presumably from the fellow participant. The fake answer sheet had 6 correct answers out of 10. After establishing that the other participant performed better on the test, information consistent with the false anticipation of a lottery was provided: the participant with the higher score (the other) would get five tickets whereas the participant with the lower score (main participant) would get only three tickets. Finally, each participant was told that in the group-based task they would play the role of the subordinate and the other participant would be the supervisor. Taken together, these instructions aimed to make participants aware of their inferior outcome on an important test that will presumably result in less desirable role in the next part of the study, as well as a lower number of lottery tickets relative to the other participant.

Measurement of dependent variables. Participants were then asked questions pertaining to the dependent variables and the manipulation checks. To ensure consistency with the cover story, participants were told that to achieve the goals of validation of the test of creativity, they would be asked questions about the way in which the test was administered (Appendix 5). All ratings were made on 7-point Likert-type scales. Two procedural judgments were measured: Procedural fairness judgments were solicited by asking participants how fair they considered the way in which the test was administered (1=very unfair, 7=very fair); Procedural satisfaction was assessed by asking participants how satisfied they were with the way in which the test was administered (1=very dissatisfied, 7=very satisfied). Outcome fairness judgments were measured by asking participants how fair it was that they got the creativity score that they obtained (1=very unfair, 7=very fair). Outcome satisfaction was solicited by asking participants how satisfied they were with their score (1=very dissatisfied, 7=very satisfied).

Next, participants were reminded that there was a behavioral part of the test that they had to do with the other participant. They were led to believe that their mood and reactions to the other could influence how they perform on the group task; therefore, their mood should be measured before the task. They were given the 32-item scale used in Study 1, but with slightly different instructions (Appendix 3c), that measured envy and its components of depressive feelings, inferiority, anger, and hostility or ill-will. They were asked to rate the intensity with which they experienced different emotions toward the fellow student on 12-point scales (0=not at all, 11=great amount). As in Study 1, responses on groups of roughly three to four items on the scale were added to develop indices for envy, dejection, hostility, resentment and admiration. Participants also completed the episodic envy scale (Cohen-Charash, 2009) but with slightly different instructions (please see Appendix 3d).

To measure feelings directed toward the external agency (the experimenter in this case), the participants were asked to rate the extent to which they experienced anger, resentment, hostility, annoyance, frustration, disgust, grudge against, and contempt toward the experimenter, on a scale of 0 to 11. In order to reduce self-presentational concerns, participants deposited a separate sheet with these ratings in a slotted box.

To examine hypotheses about the use of “unfairness” as an explanation for the relative disadvantage, participants were asked questions about attribution of the higher test score of the other participant (Appendix 6a).

As an indirect measure of hostility, participants were also asked to complete an “initial impression scale” (Appendix 6c). Participants were led to believe that this scale measures their impressions of the other participant and will therefore help to control for biases in the group task. Thus, participants were asked to rate the extent to which they viewed the others as likeable or competent. Finally, the participants were thoroughly debriefed, thanked, and dismissed.

Results

Manipulation checks. Fairness judgments in the “fair” condition were much higher than in the “unfair” condition. As shown in Table 7, a main effect of condition was found on judgments of fairness of test administration. However, other fairness judgments like fairness of the obtained creativity score and satisfaction with test administration or creativity score were not significantly different across conditions.

Emotional reactions toward the superior target. Reactions to the manipulation of fairness are reported in Table 8. Although there was a trend for participants in the “unfair” condition to report more envy (via envy index and the episodic envy scale) than in the “fair” condition, the

Table 7.

Manipulation checks as a function of Procedural Fairness in Study 2 (N =70)

| | Low-Fairness (<i>n</i> = 33) | | High-Fairness (<i>n</i> = 37) | | <i>d</i> | Results of ANOVA | |
|---------------------------------------|-------------------------------|-----------|--------------------------------|-----------|----------|------------------|------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | F-value | p>F |
| Fairness of test administration | 5.1 | 1.560 | 6.0 | 1.301 | 0.449 | 7.111 | 0.01 |
| Satisfaction with test administration | 3.6 | 1.542 | 4.0 | 1.472 | 0.199 | .243 | 0.24 |
| Fairness of creativity score | 3.9 | 1.560 | 3.6 | 1.457 | -0.136 | .423 | 0.42 |
| Satisfaction with creativity score | 2.9 | 1.608 | 2.8 | 1.699 | -0.065 | .701 | 0.70 |

Table 8.

Emotional Reactions as a function of Procedural Fairness in Study 2 (N =70)

| | Low-Fairness (n = 33) | | High-Fairness (n = 37) | | <i>d</i> | Results of ANOVA | |
|---------------------|-----------------------|-----------|------------------------|-----------|----------|------------------|------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | F (1, 68) | p>F |
| Emotional Reactions | | | | | | | |
| Envy Index | 2.3 | 2.171 | 1.7 | 2.175 | -0.189 | 1.248 | .268 |
| Dejection Index | 1.8 | 1.999 | 1.6 | 1.999 | -0.074 | .191 | .664 |
| Hostility Index | 1.4 | 2.046 | 1.0 | 1.800 | -0.143 | .718 | .400 |
| Resentment Index | 1.4 | 2.025 | 1.2 | 1.763 | -0.086 | .243 | .624 |
| Admiration Index | 4.0 | 2.132 | 4.1 | 1.962 | 0.045 | .073 | .787 |
| Episodic Envy Scale | 2.4 | 1.34 | 2.1 | 1.317 | -0.146 | .746 | .391 |
| Anger_experimenter | 1.2 | 1.926 | 0.7 | 1.442 | -0.210 | 1.56 | .215 |

Table 9.
Correlations between Fairness Judgments and Emotional Reactions in Study 2 (N = 70)

| Measure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----------------------------------|--------|---------|----------|----------|----------|----------|----------|----------|----------|
| 1 Condition | 1.000 | | | | | | | | |
| 2 Fairness of test administration | .308** | 1.000 | | | | | | | |
| 3 Envy | -.134 | -.282* | .863 (3) | | | | | | |
| 4 Dejection | -.053 | -.215† | .814** | .759 (3) | | | | | |
| 5 Hostility | -.102 | -.300* | .796** | .788** | .941 (6) | | | | |
| 6 Resentment | -.060 | -.249* | .766** | .743** | .929** | .914 (4) | | | |
| 7 Admiration | .033 | -.103 | .290* | .268* | .317** | .367** | .821 (6) | | |
| 8 Episodic Envy Scale | -.104 | -.173 | .784** | .746** | .732** | .772** | .377** | .871 (9) | |
| 9 Anger at Experimenter | -.150 | -.371** | .600** | .617** | .851** | .840** | .329** | .673** | .948 (8) |

Note. †0.05 < p < 0.10, *p < 0.05, **p < 0.01. Cronbach's alphas have been reported along the diagonal with the number of items in parentheses wherever applicable.

Table 10

Impressions of the Envied as a function of Procedural Fairness in Study 2 (N = 70)

| Impressions | Low-Fairness (n = 33) | | High-Fairness (n = 37) | | <i>d</i> | Results of ANOVA | |
|-------------|-----------------------|-----------|------------------------|-----------|----------|------------------|-----|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | F (1,68) | p>F |
| Selfish | 2.2 | 2.088 | 1.2 | 1.818 | -0.536 | 5.06 | .03 |
| Conceited | 2.5 | 2.210 | 1.4 | 1.833 | -0.527 | 4.99 | .03 |
| Dishonest | 1.6 | 1.765 | 0.8 | 1.116 | -0.596 | 6.35 | .01 |

difference was not statistically significant. Along the same lines, the dejection, hostility and resentment components of envy were not significantly different across the two levels of fairness.

Derogation. Participants' impressions of the envied individual were measured to assess indirect hostility. Ratings of the envied on negative traits were higher in the unfair condition, which suggests more derogation of the envied as unfairness increases (Table 10). Compared to the "fair" condition, participants in the "unfair" condition rated the envied individual as more selfish, conceited and dishonest (d 's between $-.53$ and $-.59$, p 's <0.05).

Anger toward the experimenter. Although participants in the "unfair" condition reported more anger toward the experimenter compared to the "fair" condition, the difference was not statistically significant (Table 8). As shown in Table 9, anger toward the experimenter was negatively correlated with judgments of fairness of procedure ($p<.01$), but strongly positively correlated with envy and its components of dejection, hostility and resentment (all p 's $<.01$). Finally, a paired sample t-test was conducted to compare anger toward the supervisor and toward the envied. Results were not significant; $t(69)=1.826$, $p=.07$.

Components of envy. Correlations between envy and its components of dejection, hostility and resentment are reported in Table 9. Envy was very strongly correlated with the component emotional reactions. Although admiration was mildly positively correlated with envy, this effect was marginally significant.

Unfairness as an explanation of superiority. Did participants use unfairness as an explanation of relative disadvantage? Participants were asked to what extent they would attribute the better score of the other participant to test administration procedure. The mean attribution score was 2.45 on a scale of 1 to 5. Participants attributed the higher score of the co-participant to test administration more strongly as the condition became more unfair ($r=-.24$, $p<.05$).

Attributions were even more strongly correlated with direct reports of fairness of procedure ($r = .65, p < .01$). Although attributions did not predict reports of envy and dejection, the components of hostility and resentment were predicted ($r = .23$ for both). However, the correlations were marginally significant ($p = .053, .055$ respectively). Thus, attributions of the envied's higher score to the test administration procedure were associated with slightly more hostile reactions.

Discussion

Multiple measures of fairness perceptions suggested that fairness was not very strongly manipulated in the study. A statistically significant difference was found only in the reports of fairness of test administration, and not for other measures (Table 7). However, the patterns of judgments of fairness of, and satisfaction with, test administration were consistent and encouraged further analysis.

Measurement of envy along with component emotional reactions spoke to the weakness of manipulation. Although trends in the emotional reactions were in the expected direction, none of the reactions reached statistical significance. At best there seems to be a very weak impact of test administration procedure on envy.

An encouraging pattern of links between fairness judgments and emotional reactions was found. Therefore, despite the absence of a statistically significant effect of condition on envious feelings, it was not possible to rule out role of perceived (un)fairness in envy. As evident in Table 9, reactions of envy, dejection, hostility and resentment were predicted by fairness judgments. A mediation analysis (Baron & Kenny, 1986) was not pursued because no link was found between condition and envious reactions. Taken together, these results leave open the possibility that procedural fairness may be important in shaping invidious hostility.

The hostile nature of envy was evident in participants' perceptions of the envied individual. The superior other was rated as more selfish, conceited, and dishonest in the unfair condition than in the fair condition, again suggesting that the advantage the participant had (through no own fault) earned ill-repute. Note that admiration was found to correlate *positively* with envy, dejection, hostility and resentment. Therefore, it is difficult to definitively establish whether envy experienced by participants in the study was purely malignant.

Similar to study 1, reports of anger toward external agency (the experimenter) supported the role of fairness perceptions in envy. Not only were participants' fairness judgments correlated with anger toward the experimenter, but reports of envy, dejection, hostility and resentment regarding the envied individual were all very strongly correlated with anger toward the experimenter.

Attributions of relative superiority to procedural fairness led to some surprises. It was clear that participants attributed the higher score of the co-participant to test administration more strongly in the unfair condition. Although attributions to the test procedure made by participants did not predict envy and dejection, they did predict hostility and resentment. This suggests that participants used fairness information to explain their relative disadvantage. However, the availability of an explanation did *not* buffer anger toward the envied individual. More specifically, participants reported even more hostility toward the superior individual even though that individual was equally not responsible for the discrepancy.

Data from Study 2 allowed distinguishing between the "perceived injustice view" and the "attributional search view" only partially. The former view contends that envious hostility stems from perceptions of unfairness, whereas the latter holds that absence of unfairness leads to stronger envy via perceptions of loss of control. Participants rated the envied individual more

negatively in the unfair vs. fair condition. This suggests that participants did experience more hostility toward the envied in the unfair condition. Although emotional reactions were not significantly different across conditions, mean trends were suggested higher envious hostility in the unfair vs. fair condition. Taken together, data were consistent with the “perceived injustice view” (envious hostility emanates from unfairness). Positive correlations between reports of envious emotions and fairness judgments provided further support for the “perceived injustice view”. Finally, attributions of disparity in creativity scores to test administration procedure were correlated with hostility and resentment toward the envied. Thus, despite the utilization of unfairness as an explanation of relative disadvantage, participants reported higher envious hostility. Hence, data were inconsistent with the “attributional search view”.

CHAPTER 5: GENERAL DISCUSSION

The source of hostility involved with the experience of envy has been a matter of debate. The inclusion of “resentment” in the definition of envy (Smith & Kim, 2007) suggests that perceived injustice might be a potential explanation. However, previous research is not unequivocal about the role of “resentment” (Smith et al., 1994; Feather & Sherman, 2002). Furthermore, previous studies have not manipulated injustice in the context of envy to examine its role. Two experiments were conducted to clarify the role played by perceived injustice in the event of unfavorable upward comparison (the cradle for envy). The presented set of studies denotes the first attempt of its kind.

Two conflicting views about the impact of unfairness were examined in the current research. According to the “perceived injustice view”, justice concerns become a part of envy very early on and form the basis of envious anger. On the other hand, the “attributional search view” contends that perceptions of injustice play a different role. The latter view posits that in an unfavorable upward comparison, the absence of unfairness triggers perceptions of loss of control because the disadvantaged party is unable to explain the relative lack. Therefore, lack of unfairness might be more envy-provoking than the presence of unfairness.

Manipulation of fairness in both Study 1 and 2 allowed comparing the “perceived injustice view” with the “attributional search view”. In both studies, two levels of fairness were created: fair and unfair. In Study 1, participants reported more envy and stronger related emotions of hostility and resentment in the unfair condition than in the fair condition. Mediation analyses provided further support for the role of injustice. Fairness judgments mediated the link between procedural (un)fairness and envy (and related components). Thus, there was preliminary support for the “perceived injustice view”.

In Study 2, although envious reactions were not significantly different across conditions, negative correlations between envious reactions and fairness judgments were informative. Specifically, participants reported more envy (hostility and resentment) as they judged the situation to be less fair. Also, participants judged the envied individual more negatively under conditions of high unfairness. In Study 2, participants' attributions of the relative disadvantage were also solicited. Participants in the unfair condition reasonably attributed the relative lack to test administration procedure more strongly. Thus, participants utilized unfairness as an explanation for the disparity of outcomes. Positive correlations between envious reactions and attribution of test scores to test administration procedure suggest that acknowledgment of unfairness as the cause of discrepancy was associated with stronger envious reactions. It is implied that absence of unfairness as an explanation was not as frustrating as the presence of unfairness. Therefore, data were inconsistent with the "attributional search view". Instead, the "perceived injustice view" received more support. Together, the data suggest that justice concerns are able to motivate (instead of pacifying) hostility toward the envied. It is plausible that envious individuals are more driven to establish justice than to perceive control over the situation. Future research will be needed to tease apart the motivations of envious individuals more concretely.

One of the strengths of the paradigms used in Study 1 and 2 was that the envied individual was not directly responsible for the relative advantage. In the scenarios of Study 1, the supervisor (an external agent) determined the bonuses either in a fair or unfair manner. In Study 2, the experimenter either gave the opportunity to work on a practice test to both the envied and the envier (fair condition), or gave the opportunity only to the envied and not to the envier (unfair condition). In both studies, participants reported anger toward the external agent. This

anger was strongly correlated with envious reactions toward the advantaged individual, despite the fact that this individual was simply a beneficiary of someone else's wrongdoing. Given that anger toward the external agent was also predicted by condition in Study 1, and fairness judgments (in both studies), the case for thwarted justice concerns as the cause of envious hostility becomes stronger.

Removal of responsibility for the relative advantage from the envied target added another interesting dimension to the current research. Across levels of procedural fairness, the envied individual was equally not responsible for the relative advantage. Yet, participants were more hostile toward the same superior target when the procedure was unfair. Study 1 found more hostility toward the envied in the unfair (vs. fair) condition. Although in Study 2 anger toward the envied did not differ significantly across conditions, mean trends and correlation coefficients suggested higher anger toward the envied in the case of lower procedural fairness. A potential explanation of hostility toward an innocent beneficiary is displaced aggression (Berkowitz, 2008). Markus-Newhall, Pederson, Carlson and Miller (2000) listed provocation intensity and negativity of the setting as moderators of displaced aggression. It is plausible that anger toward the envied was but displaced hostility toward the external benefactor. Possibly, when provocation intensity or negativity of the situation were higher (procedural unfairness coupled with outcome inequality), participants experienced stronger displaced hostility toward the envied.

The current set of studies advance research on envy through a holistic approach to measuring this negative emotion. Along with envy, related emotional reactions that are known to accompany envy were also measured (dejection, hostility and resentment). Apart from self-reports of emotions, participants' impressions of the envied individual were also solicited.

Participants seemed to derogate the targets of envy more in the unfair condition consistently across both studies. Thus, data present further evidence for the hostile reactions to relative disadvantage.

Limitations

Despite several advantages, the present research has some consequential limitations. First of all, links between procedural fairness and self-reports of envy were weak. In Study 1, reports of envy were only marginally significantly different across conditions. In Study 2, reports of envy were in the expected direction but not different across conditions. A closer look at the data suggests a potential explanation for why the effect sizes of envy were weak across both studies. Data showed that reports of dejection were not significantly different across levels of fairness (in both studies). Therefore, it is not clear whether participants felt more inferior or disadvantaged relative to the envied individual as a result of increased situational unfairness. It is thus less surprising that very weak effects were observed between envy and unfairness in the current studies. There were, however, strong links between (un)fairness judgments and hostility toward the envied individual across both studies.

It is noteworthy that only procedural justice was manipulated while keeping distributive justice constant. All participants were subject to unfavorable upward comparison contexts. Distributive justice concerns (judgments of fairness of, or satisfaction with, bonus) were somewhat more strongly correlated with envy and its components compared to procedural justice concerns (Table 6). It is reasonable that concerns about distributive justice are more central to the experience of envy than procedural justice. Future research is needed to clarify the relative importance of distributive justice vs. procedural justice. Although manipulation of the distributive justice seems to be the ideal next step, it does not come without its limitations.

Distributive justice is confounded with importance of the outcome. Manipulation of distributive justice carries the risk of changing the importance of the outcome felt by the envious individual. In other words, smaller (bigger) disadvantage might be less (more) upsetting, creating difficulties in interpretation of individuals' reactions.

Conclusion

Procedural justice was manipulated in the context of unfavorable upward comparisons in two experiments. In general, stronger invidious hostility and resentment were observed when procedural fairness was low. Situational unfairness affected envious emotions through fairness judgments. Both studies utilized a target of envy that was not directly responsible for the unfair advantage. Yet, the superior party received hostility and derogation of envious individuals, more so in the unfair condition. Thus, justice concerns seem to play some role in invidious hostility. Results suggest that we may view superior others more negatively and treat them less kindly simply because the superior targets find themselves beneficiaries of an unfair external agent. As such, the findings have implications for understanding envy. Awareness of relative disadvantage likely potentiates resentment and anger for the system of allocation. Envious reactions targeted at the envied individual may be an offshoot of this resentment—a form of displaced hostility. Findings are also relevant to understanding emotional reactions to combinations of different kinds of (in)justice. Distributive injustice was involved in each condition of both studies: outcomes were less favorable for the participant. Yet, participants were not equally (dis)satisfied across conditions. Summing up, procedural justice was found to be relevant to emotional reactions more generally.

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APPENDICES

Appendix 1: Study 1 Scenarios

Now you will be presented with a scenario. The scenario presents a common situation that arises at the workplace. Please read carefully and try to imagine that the scenario actually happened to you. It is crucial that you pay close attention to the scenario and try to “live” it.

To aid your imagination, there will be some questions to test your memory about the scenario.

Later there will be questions about the emotions that you *experienced*.

<Click “Next”>

“Last summer you were able to secure an internship in a company called ITC. For a long time, it had been your dream to work for this company. You were extremely happy to have got that internship and you wanted to make the most of the opportunity by doing your best. Your work was to identify problems in the operation of the company and you worked in a paired team. Basically, you and your partner were required to analyze the operation of the company and come up with ways to reduce costs or increase profits. The part that was really good about your internship was the flexibility in choosing a sector to analyze. For instance, you had the authority to choose whether you wanted to focus on production, or marketing, or sales, or human resources. In this way, the internship allowed you a very active role. You were excited to think of the learning opportunities that your internship was going to provide.”

“There were a large number of interns like you at the company ITC. Especially, another student at Iowa State University was selected for the position of a summer intern. The company decided that it would be best to have same-gender pairs as teammates who were also similar in several other ways. So, your partner happened to be this other student from Iowa State of the same gender. Both of you worked for 40 hours per week and made the same hourly wage of \$13. Each team was assigned a supervisor for the duration of the internship. The supervisor played an advisory role.”

<To aid your imagination of the scenario, please take a couple moments to answer the following questions. >

Q1. What was the name of the company that you worked for?

Q2. Describe the work that you were required to do.

Q3. Your fellow employee was: a. another undergraduate student, b. a very senior manager c. a blue-collared worker, d. a contractor?

Q4. Your fellow employee was going to school at a. ISU, b. University of Minnesota, c. University of Chicago, d. New York University?

Q5. You and your fellow employee both worked for a. 10 hours/week, b. 20 hours/week, c. 25 hours/week, d. 40 hours/week?

Q6. You and your fellow employee were both paid a. \$8/hour, b. \$9/hour, c. \$11/hour, d. \$13/hour?

Q7. The gender of your partner was: male/female/other.?

"Essentially, both you and your fellow intern worked the same number of hours and earned the same hourly wage. Both of you tried hard and performed well. You were glad that things were going the way you wanted them to. Because the organization performed very well last summer, it was announced on the last day of summer that a bonus of 5000 Dollars will be distributed among all interns. A certain amount of money has been allocated to you and your fellow student-intern. Your supervisor has been asked to decide how this amount of money will be distributed between the two of you."

Fair condition: "Your supervisor took the allocation of bonuses very seriously. A very thorough attempt was made to correctly determine who would receive what amount of money. Your supervisor wanted to give both teammates a chance to describe their own unique contribution to the company. So your supervisor spoke to you and your partner separately. Your supervisor also consulted other employees in the company, especially those who had worked or interacted with both of you. Your supervisor felt that such people could provide an objective assessment of your performance. Finally, the supervisor carefully inspected individual examples of the work both of you did."

Unfair condition: "Your supervisor made a quick assessment of yours and your partner's contributions. Your partner got the opportunity to speak to the supervisor and to discuss any unique contributions made to the company. However, you did not get any chance to mention your contributions or voice your opinion about how the bonuses be allocated. The supervisor also consulted with a small group of other employees. It turned out that the people who were consulted had worked more closely with your partner."

Outcome: “A week after this, employees were paid. Based on the supervisor’s assessment, you received a bonus of 300 Dollars. Your fellow student received a bonus of 400 Dollars.”

Appendix 2: Study 1 Fairness Judgments

I. Reactions

(i) How fair do you consider the procedure used to assess the bonus that you and your fellow student received? Please rate on the following scale

1 2 3 4 5 6 7

Very UNFAIR

Very fair

(ii) How satisfied are you with the procedure used to assess bonuses received by you and your fellow student? Please rate on the following scale

1 2 3 4 5 6 7

Very satisfied

Very DISSATISFIED

(iii) How fair were the bonuses that you and your fellow student received? Please rate on the following scale

1 2 3 4 5 6 7

Very UNFAIR

Very fair

(iv) How satisfied are you with the bonuses received by you and your fellow student? Please rate on the following scale

1 2 3 4 5 6 7

Very satisfied

Very DISSATISFIED

Appendix 3a: "Mood Control" Measure

Please indicate how you are feeling toward the fellow employee who got a higher bonus than you. Please select a number on the scale below that best fits your feelings and then enter it in the space next to each item.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|------------------------|-----------------------------|------------------------------|-----------------------------|---|---|---------------------|---|---|---|----|----|
| None At All | | | | | | Great Amount | | | | | |
| 1. ___ Cold toward | 9. ___ Liking for | 17. ___ Proud of yourself | 25. ___ Inspired by | | | | | | | | |
| 2. ___ Envious of | 10. ___ Hostile | 18. ___ Warm respect for | 26. ___ Contempt for | | | | | | | | |
| 3. ___ Jealous of | 11. ___ Frustrated by | 19. ___ Longing | 27. ___ Ashamed | | | | | | | | |
| 4. ___ Annoyed by | 12. ___ Disgusted by | 20. ___ Admiring | 28. ___ Pity for | | | | | | | | |
| 5. ___ Sympathy for | 13. ___ Indignant toward | 21. ___ Compassion | 29. ___ Depressed | | | | | | | | |
| 6. ___ Inferior to | 14. ___ Happy for | 22. ___ Self-lacking | 30. ___ Pleased for | | | | | | | | |
| 7. ___ Resentful | 15. ___ Grudge against | 23. ___ Superior to | 31. ___ Disrespect for | | | | | | | | |
| 8. ___ High regard for | 16. ___ Angry at | 24. ___ Competitive | 32. ___ Resentful toward | | | | | | | | |

Appendix 3b: Episodic Envy Scale (Cohen-Charash, 2009)

Please indicate how you are feeling toward the fellow employee who got a higher bonus than you, by selecting a number from 1 (not characteristic at all) to 9 (extremely characteristic)

1. "I lack some of the things that my co-participant has,"
2. "I feel bitter,"
3. "I feel envious,"
4. "I have a grudge (resentment, bitterness) against my co-participant,"
5. "I want to have what my co-participant has,"
6. "My fellow participant has things going for him/her better than I do,"
7. "I feel gall (irritated, annoyed),"
8. "I feel some hatred toward my fellow participant," and
9. "I feel rancor (resentment, ill will) toward my fellow participant."

Appendix 3c: "Mood Control" Measure

Please indicate how you are feeling toward your fellow participant. Please select a number on the scale below that best fits your feelings and then enter it in the space next to each item.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|------------------------|-----------------------------|------------------------------|-----------------------------|---|---|---------------------|---|---|---|----|----|
| None At All | | | | | | Great Amount | | | | | |
| 1. ___ Cold toward | 9. ___ Liking for | 17. ___ Proud of yourself | 25. ___ Inspired by | | | | | | | | |
| 2. ___ Envious of | 10. ___ Hostile | 18. ___ Warm respect for | 26. ___ Contempt for | | | | | | | | |
| 3. ___ Jealous of | 11. ___ Frustrated by | 19. ___ Longing | 27. ___ Ashamed | | | | | | | | |
| 4. ___ Annoyed by | 12. ___ Disgusted by | 20. ___ Admiring | 28. ___ Pity for | | | | | | | | |
| 5. ___ Sympathy for | 13. ___ Indignant toward | 21. ___ Compassion | 29. ___ Depressed | | | | | | | | |
| 6. ___ Inferior to | 14. ___ Happy for | 22. ___ Self-lacking | 30. ___ Pleased for | | | | | | | | |
| 7. ___ Resentful | 15. ___ Grudge against | 23. ___ Superior to | 31. ___ Disrespect for | | | | | | | | |
| 8. ___ High regard for | 16. ___ Angry at | 24. ___ Competitive | 32. ___ Resentful toward | | | | | | | | |

Appendix 3d: Episodic Envy Scale (Cohen-Charash, 2009)

Please indicate how you are feeling toward your fellow participant, by selecting a number from 1 (not characteristic at all) to 9 (extremely characteristic)

1. "I lack some of the things that my co-participant has,"
2. "I feel bitter,"
3. "I feel envious,"
4. "I have a grudge (resentment, bitterness) against my co-participant,"
5. "I want to have what my co-participant has,"
6. "My fellow participant has things going for him/her better than I do,"
7. "I feel gall (irritated, annoyed),"
8. "I feel some hatred toward my fellow participant," and
9. "I feel rancor (resentment, ill will) toward my fellow participant."

Appendix 4: RAT

Remote Associates Test[®]

On the following page you will have the opportunity to complete the Remote Associates Test[®]. This is a validated psychometric instrument that is widely used in selection test batteries. Timing is a critical component when administering the Remote Associates Test[®], so you will have a maximum of **15 minutes** to complete the test. Make sure to devote all the effort necessary to each problem. Your test proctor will let you know when time has expired. On the following page you will encounter ten problems. Each of the ten problems will consist of three “clue” words. For each problem, your task will be to think of a fourth word that relates to each of the other three “clue” words in a meaningful way.

| <u>Example</u> | | | |
|-----------------------|-------|-------|--------|
| Elephant | Lapse | Vivid | Memory |



STOP! Do not proceed until you receive further instructions!
For each set of clues, write your response in the adjacent designated space.

| | | | | |
|-----|----------|---------|---------|----------------------|
| 1. | Bass | Complex | Sleep | <input type="text"/> |
| 2. | Chamber | Staff | Box | <input type="text"/> |
| 3. | Desert | Ice | Spell | <input type="text"/> |
| 4. | Base | Shadow | Dance | <input type="text"/> |
| 5. | Inch | Deal | Peg | <input type="text"/> |
| 6. | Lounge | Hour | Drink | <input type="text"/> |
| 7. | Blood | Music | Cheese | <input type="text"/> |
| 8. | Skunk | Kings | Boiled | <input type="text"/> |
| 9. | Jump | Kill | Bliss | <input type="text"/> |
| 10. | Shopping | Washer | Picture | <input type="text"/> |



STOP! Do not proceed until you receive further instructions!

(v) How satisfied are you with your creativity score? Please rate on the following scale

1 2 3 4 5 6 7

Very satisfied

Very DISSATISFIED

(vi) How accurate do you think was your creativity score? Please rate on the following scale

1 2 3 4 5 6 7

Very INACCURATE

Very accurate

(vii) How fair do you think was the distribution of tickets between you and the Other? Please rate on the following scale

1 2 3 4 5 6 7

Very UNFAIR

Very fair

(viii) How satisfied are you with the distribution of tickets between you and the Other? Please rate on the following scale

1 2 3 4 5 6 7

Very satisfied

Very DISSATISFIED

(ix) Relative to you, to what extent did the Other do his/her best on the RAT? Please rate on the following scale

1 2 3 4 5 6 7
Much worse **Equally** **Much better**

(x) Relative to you, to what extent was the Other good at performing on the RAT? Please rate on the following scale

1 2 3 4 5 6 7
Much worse **Equally** **Much better**

Appendix 6a: Attributions and Predictions

If you had to explain why the other person outperformed you on the creativity test, how important do you think was each of the following factors in them possessing that characteristic or attaining the object or status. Please circle your response by using the following scale

| 1 | 2 | 3 | 4 | 5 | |
|--|----------|----------|----------|-----------|---|
| Not at all | | | | Very much | |
| | | | | | |
| Their level of ability or talent: | 1 | 2 | 3 | 4 | 5 |
| Their level of effort: | 1 | 2 | 3 | 4 | 5 |
| Unfair help from others: | 1 | 2 | 3 | 4 | 5 |

If you had to predict what will happen to this person in the future, what would you predict with regard to the following possibilities?

| 1 | 2 | 3 | 4 | 5 |
|---------------|--|---|---|-------------|
| Very Unlikely | | | | Very Likely |
| | | | | |
| ___ | He/she will reach the top of his/her occupation and be very successful | | | |
| ___ | He/she will have a satisfying romantic and family life | | | |
| ___ | He/she will be admired and respected by others around him/her | | | |
| ___ | He/she will have many friends and experience many good times | | | |

Appendix 6b: Initial Impression Control Measure

Please give your impression of your fellow employee on the following traits by selecting a number on the scale below that best fits your view and then entering it in the space next to each item.

0 1 2 3 4 5 6 7 8 9 10 11
None At All Great Amount

- | | | |
|-----------------|-----------------------|---------------------|
| 1. ___ Likeable | 7. ___ Advantaged | 13. ___ Intelligent |
| 2. ___ Arrogant | 8. ___ Trustworthy | 14. ___ Moral |
| 3. ___ Selfish | 9. ___ Confident | 15. ___ Mediocre |
| 4. ___ Friendly | 10. ___ Self-Centered | 16. ___ Poised |
| 5. ___ Genuine | 11. ___ Conceited | 17. ___ Fortunate |
| 6. ___ Gifted | 12. ___ Dishonest | 18. ___ Ethical |

Appendix 6c: Study 2 Initial Impression Control Measure

Please give your impression of your fellow participant on the following traits by selecting a number on the scale below that best fits your view and then entering it in the space next to each item.

0 1 2 3 4 5 6 7 8 9 10 11
None At All Great Amount

- | | | |
|-----------------|-----------------------|---------------------|
| 1. ___ Likeable | 7. ___ Advantaged | 13. ___ Intelligent |
| 2. ___ Arrogant | 8. ___ Trustworthy | 14. ___ Moral |
| 3. ___ Selfish | 9. ___ Confident | 15. ___ Mediocre |
| 4. ___ Friendly | 10. ___ Self-Centered | 16. ___ Poised |
| 5. ___ Genuine | 11. ___ Conceited | 17. ___ Fortunate |
| 6. ___ Gifted | 12. ___ Dishonest | 18. ___ Ethical |