AM I MORE UPSET WHEN CLOSE OTHERS ARE BENEFITED? BUT WHAT DOES IT MEAN TO BE "CLOSE" TO ANOTHER: RESPONSES TO INJUSTICE AS A FUNCTION OF PROXIMITY

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ABSTRACT

GREGORY ROEDER: Am I More Upset When Close Others are Benefited? But What Does it Mean to Be "Close" to Another: Responses to Injustice as a Function of Proximity

(Under the direction of Vaida Thompson)

Six studies were conducted to determine if, to what degree, and why distress occurs when a psychologically or a physically close, rather than distant, other is rewarded over oneself. It was hypothesized that increased proximity results in greater distress because we tend to see ourselves as similar to close others, particularly psychologically close others, and because proximity, either spatial or emotional, increases expectations of future interactions in which we will be reminded of the benefit to other. Three exploratory studies that manipulated physical and psychological closeness and three refined studies that included manipulations of similarity or future interactions revealed that benefits to another who is psychologically or physically proximal are equally distressing, but the mediators of distress differ. There are clear paths from perceived similarity to perceived injustice to distress when a psychologically close other is benefited relative to oneself. When a physically close other is benefited, distress is mediated by expected reminders of other's benefit rather than perceived similarity and perceived injustice.

To my parents, for providing me this opportunity, to my grandfather, who valued education above virtually all else, and to Laurel, without whom this experience would have been far more difficult.

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CHAPTER I

INTRODUCTION

The current research addresses a phenomenon referenced at least as far back as Aristotle, if not further, that has neither been fully researched nor fully explained - that greater injustice may be perceived when a close other earns an unshared benefit than when a non-close other receives the same benefit. Aristotle stated this phenomenon succinctly: "Injustice increases by being exhibited towards those who are friends in a fuller sense…And the demands of justice also seem to increase with the intensity of the friendship, which implies that friendship and justice exist between the same persons and have an equal extension."

As Aristotle's words can attest, both the concept of justice and the notion that justice varies as a function of the propinquity of those involved with the justice process have been recognized for over 2000 years. It is well-accepted and well-documented that, across cultures and even species, organisms are expected to protect, care for, and often give preferential treatment toward close rather than distant others (e.g., brothers vs. strangers). We certainly see a plethora of research evidence that we want ingroup members/close others to succeed. However, there is much scanter evidence in support of that which Aristotle observed: What happens when those we are supposed to love are benefited when we are not? Will we be pleased that this person was benefited, or will this lead to anger, dislike, and rejection?

On first blush, it would seem that we would be pleased when someone close, in our ingroup, receives a benefit. After all, we identify with ingroup members; we tend to like ingroup members; they are part of our collective self-esteem. So shouldn't a benefit to an ingroup member cause us to have a warm glow for that person? It takes little thought to generate cases in which we know this not to be true. Are we more pleased when a member of our basketball conference advances to the final four than when a member of an "outgroup" conference achieves this status? Are children more pleased when a sibling gets a benefit unbestowed on themselves than when a similar benefit is allocated to a cousin or someone outside the family? It seems likely that the response to both of these questions would be no, that we in fact can accept more readily, be less offended by and less covetous about, an unshared benefit given to an unrelated, even if relevant, other than when a close other receives this benefit.

Surely there are factors that cause us to be more upset when a close other receives benefits that are not also rewarded to us. One of these must be the nature of closeness. That is, would we not be less upset if someone who is physically close – such as a person in one's dorm is benefited, than when an emotionally or psychologically close other, such as a sibling, a close friend, or one's roommate – receives a benefit that one does not share? There are several prominent theories that address the issue of responses involving close others. Perhaps among the most cited is Tesser's (1988) self-evaluation maintenance model. This model proposes that performance by a close other, relative to a non-close other, causes distress. However, Tesser's model and associated research do not address two issues that would seem to be important. One that is central to the present research is the receiving of a benefit by another. A second is the question of the meaning of closeness. Tesser's research

has focused almost exclusively on varying degrees of psychological closeness between the self and the other. However, we might also expect that performance of a physically close other whose outcomes exceed one's own would be more stressful than similar outcomes by a physically distant other. Would one expect similar responses to injustice if the other is physically rather than psychologically close, and would the reasons why one responds to this injustice differ based on the type of closeness? Research has not clearly disaggregated physical closeness and psychological closeness or the differential effects of these two types of closeness.

When then might we expect responses to be the same when a psychologically or physically close other is benefited, and when might we expect responses to differ? Let us assume that one might experience at least a modicum of distress in instances of both physical and psychological closeness if the benefit is of any value, simply because of feelings of envy. However, other factors must enter into overall feelings of distress at another's benefit, and it would not seem likely that all would pertain with both psychological and physical closeness. Principally among these factors hypothesized in the present research are perceived similarity between oneself and the other, future contacts with the other, and the perception of injustice.

Because one of the most common justice principals is that of equity, or the awarding of rewards according to contributions, the perceived similarity between oneself and the benefited other would seem to be a crucial element. If one's skills, abilities, inputs, and so on are perceived as similar to that of the other, then an unequal allocation despite equal qualifications is considered unfair. Although similarity might well be perceived with a physically close other, it seems more likely that one would perceive greater similarity with someone who is psychologically close.

Future contacts would also seem of relevance. Whether one is psychologically or physically close to a benefited other, contact with the other might well contribute to one's distress. This may seem somewhat counter to repeated findings in the literature (e.g., Berscheid, Graziano, Monson, & Dermer, 1976) that we like others with whom we anticipate contact. However, underlying the assumption of more negative affect if one expects future contact is the assumption that one might, with contact, be reminded repeatedly that the other has been favored relative to oneself. It would seem possible that anticipated future contact and reminders of being disfavored might result in more negative affect if other were someone with whom one were physically, but not necessarily psychologically, close. For example, is it not likely that a graduate student would anticipate unremitting unpleasant contact with a physically close office mate who has received a lucrative appointment, someone with whom close friendship might not exist but with whom contact would still be omnipresent?

The third factor that would seem important in predicting distress when another is benefited is that of perceived justice – or the presence of injustice. This should be greater in the presence of perceived similarity. That is, if one does not perceive similarity, there is, at least, less reason to believe that the benefit to other was unjust. However, anticipated future contact, even with anticipated reminders of being disfavored, should not, in the absence of perceived similarity, result in perceived inequity.

The model being proposed is thus: We are almost always jealous and upset when someone gets something we also desire but did not receive. We are more upset, however, when a close rather than distant other receives this benefit. This is primarily for two reasons.

First, we are likely to see ourselves as similar to close others. We tend to believe that similar others are equal to us. Equity considerations lead us to believe that equal people

deserve equal treatment and outcomes. Therefore, we will see it as unjust if those who are similar to us, and thus equal to us, receive benefits that we do not receive. As a result, we experience negative affect, such as feelings of anger, rejection, negativity, jealousy, envy, and upset. Contributing to these negative feelings are likely to be perceptions that, being close to that other, there will be future contact with that person. Expectations of contact may not per se enhance negativity, since such expectations have been demonstrated to result in positive feelings; however, beliefs that one will be reminded repeatedly of other's benefit might do so.

Second, however, mere proximity – simple physical proximity – absent perceived similarity, should not be sufficient to engender feelings of inequity that are as equally strong as those experienced with perceived similarity. Nevertheless, one perceiving a benefit to another who is in close proximity might still experience negative affect, derivable in part from simple envy and in part from perceptions that one would experience future contact that would remind one that other has been benefited.

In sum, then, psychological proximity would be expected to result in perceived similarity, engendering perceptions of inequity, and resulting in negative affect. Perceived similarity and perceived injustice are not expected to be as evident with mere physical proximity absent perceptions of psychological closeness; rather, negative affect will result from feelings such as envy and inescapable reminders due to other's presence.

These predictions essentially follow from several theoretical streams, which are adumbrated in the following, beginning with evolutionary arguments, but emphasizing cognitive consistency, self-evaluation maintenance, social comparison, and relative deprivation theories.

Evolutionary Arguments

From the evolutionary perspective, a benefited other who is close physically might create the greatest distress. Anecdotally as well as empirically, one can generate evidence from an evolutionary standpoint that displeasure is greater when a close other – either psychological or physical - is exclusively benefited. For example, in competing for scarce resources, one might feel more threatened and experience greater negative emotions if a neighbor – even if that neighbor is not psychologically close - received considerably better harvests than a spatially distant person, possibly because one is more certain that the neighbor has similar land, climate, rainfall, and so on, and should therefore experience similar yields as oneself. These apparent inequities between proximal animals, individuals, tribes, nations, and so on, have led to conflict throughout the millennia.

Distress on viewing a benefit to a physically close other would likely be attenuated due to the development and maintenance of norms of fairness and justice. Human and non-human societies have evolved mechanisms to ensure equity and to prevent the difficulties that arise when it is absent. Therefore, with psychological closeness, even in more primitive settings, norms of sharing likely existed to preclude benefit inequity due to environmental inequity: Family and friends help and share with one another. A violation of equity is apparently disruptive even among animals. Brosnan and de Waal (2003) conducted research in which monkey dyads could exchange tokens for either a highly desired reinforcer (grapes) or a less desired reinforcer (cucumber). The conditions for reinforcement were manipulated so that they were unequal within pairs. For example, one monkey could exchange his/her tokens for grapes, but the other monkey could exchange them only for cucumber. The rate at which the less-rewarded monkey refused either to exchange his/her token or accept the

reinforcer (an extremely unlikely occurrence under normal conditions) was then measured. Under these circumstances, rejective behaviors occurred 45-80% of the time, with some monkeys becoming so enraged that they would forcibly throw the token or cucumber aside. The authors speculated that these results indicate that even non-human species expect equal outcomes given equal effort, and that animals have evolved this expectation and desire for equity/equality to prevent conflict within social groups (Brosnan & de Waal, 2003). Within human culture, examples of norms, rules, and laws designed to prevent the chaos triggered by perceived inequity abound. For instance, it is not uncommon for companies to forbid coworkers from discussing their salaries with one another, under threat of being fired.

Another mechanism that may have evolved to avoid social conflict is self-esteem. It is clear that perceived similarity to others enters into the formation and maintenance of self-esteem. For example, the sociometer theory of self-esteem (Leary, Tambor, Terdal, & Downs, 1995, as cited in Kirkpatrick & Ellis, 2001) proposes that self-esteem is a mechanism that alerts us to our social status relative to others and notifies us of our likelihood of success in obtaining desirable outcomes, thus increasing the efficient use of our social resources. Knowledge of whether we are similar, equal to, or inferior to, another help us make such determinants as what we think we deserve, what is fair, and whether or not we should challenge the status quo. For example, we are likely to pursue more attractive romantic partners rather than to settle on lesser options if we have high interpersonal self-esteem. Our self-esteem also shapes the social groups to which we elect to belong. If our academic self-esteem is low, we don't waste $65 applying to Harvard; instead, we use this money to apply to mediocre state universities. Further, self-esteem helps us to maximize our status within these groups (Frank, 1985). We may prefer to be a stellar student at a less prestigious school

rather than to struggle at a top-notch one - even if we do believe that admission to Harvard seems possible. Finally, self-esteem helps us to minimize social conflict, in that we don't try to achieve higher status positions within our group unless we believe that our efforts have a reasonable likelihood of success (Kirkpatrick, Waugh, Valencia, & Webster, 2002). Even in non-human species, violent encounters over status are rare; instead, such conflicts are resolved through demonstrations of strength (e.g., larger horns, fiercer growls, and so on) in which the expected loser simply acquiesces (Kirkpatrick & Ellis, 2001).

Cognitive Consistency Theories

Given perceived similarity, cognitive consistency theories offer several insights as to why our anger increases when a close other is unjustly rewarded, specifically in terms of our need for congruity in our attitudes towards ourselves, others, and how we believe the world operates. From a simple balance perspective (Heider, 1958), one might argue that people possess a heuristic along the lines of "I am associating with this person. I associate myself with similar others. Because this person is close to me, he/she must be similar to me." It comes as no surprise that we tend to be similar to those with whom we are psychologically close (Huston & Levinger, 1978), as friendships with similar others are often more rewarding and require less effort (Thibaut & Kelley, 1959). This has been demonstrated repeatedly in both romantic (Schoen & Wooldredge, 1989) and non-romantic (Griffit & Veitch, 1974) relationships. It is also true, however, that we often find ourselves as similar to those with whom we are physically close for several reasons. For example, because it is less effortful to interact with than to avoid close others or because we wish to get along with those near us (Furnham, 1989), we are likely to discover similarity through interaction. Researchers have observed this effect with residents in apartment complexes (Festinger, Schachter, & Back,

1950; Holaham, Wilcox, Burnam, & Culler, 1978) and dormitories (Marmaros & Sacerdote, 2003), among state trooper trainees (Segal, 1974), and in laboratory settings (Darley & Berscheid, 1967).

Finding that anyone receives benefits one does not also receive might cause one to feel uncomfortable and to feel that life is unfair. However, such feelings might be more likely to occur when the favored others are psychologically close - whether they are so through given relationships (as among siblings) or through selected friendships. With such closeness comes greater knowledge about the other, allowing one to be more certain about one's similarity to the other, and thus one's deservingness of equal benefits. One should be less certain about one's similarity to and thus equality of self and other with less psychologically close relationships, and thus less certain about one's deservingness of equal benefits. As a consequence, one should be more frustrated and upset when a non-shared benefit is accorded a similar other: One might see the close other's reward as "I should have gotten this;" "I deserve this as much as he/she did;" "I barely missed getting this benefit." Think again, of the basketball example: Another school in your conference with an almost identical record is invited to participate in March Madness. You know this team; you know you are equal; you have been deprived. Balance theory would not necessarily predict perceived similarity with one who is physically close, as expectations of similarity and/or knowledge about the other is not as likely to result from mere physical propinquity.

Social Comparison Theory

Nature of comparisons. Social comparison theory and its derivatives also provide useful paradigms pertaining to perceived injustice in relation to close others. A basic concept in this theory is that we will compare ourselves with similar others. Therefore, while it is

proposed here that perceived similarity will be greater with psychologically close others, effects should be the same with physically close others to the extent that one sees oneself as similar. One reason for the greater likelihood of social comparison with close others who are perceived as similar is that we are likely to consider information gleaned from such comparisons as valid, and thus have greater confidence in the information gained and more comfort in drawing internal attributions from this information (Goethals & Darley, 1977), either about ourself or about the other. As a result, comparisons with similar others might make it more likely that we would decide that the other's success was due to his/her superiority and/or our inferiority, damaging our self-image. There is greater ambiguity when one compares with someone who is not close, psychologically or physically, especially if distance conveys dissimilarity, causing us to be less certain concerning whether success at a task or, in the present case, receipt of benefits is due to internal or external factors. We can limit the damage done to our self-esteem by ascribing the outcome to something external to the person. Note again, however, that this should be true to the extent that the distant other is considered to be dissimilar. For example, a recent UNC graduate who was not hired at a prestigious company but who learns that a Duke student was hired might easily attribute the other's success to a superior education, an upper-class upbringing, or family contacts. In this case, dissimilarity is assumed with distance. However, even if the person is not close physically or psychologically, one might assume that another UNC student who was hired is similar to oneself in education and socioeconomic background. One might thus attribute that person's success to his/her internal attributes, such as intelligence or qualifications that must be superior to one's own.

Besides self-enhancement, another purpose of social comparison is to increase self-knowledge and opportunities for self-improvement (Wood & Taylor, 1991). When we fail at a task, we can compare our performance with more successful others, allowing us to see our shortcomings and better prepare ourselves for future achievement opportunities. When we feel we are very similar to a benefited other, it is very difficult to find reasons why that person bested us. Thus, no information is gained from our failure (except maybe that life is unfair), and we learn nothing about how to improve our performance. Similarly, this decreases our feelings of control, in that we feel like there might be nothing we can do to improve our future outcomes, which can lead to feelings of hopelessness and inadequacy (Crocker, Major, & Steele, 1998).

Frequency of comparisons. Social comparisons should be more frequent with proximal instead of distant others, whether they are psychologically or physically close. One of the primary tenets of social comparison theory is that we are more likely to compare ourselves to similar others (Festinger, 1954), especially in regard to abilities (Goethals & Darley, 1977). Because we are more likely to perceive similarity in a proximate other, it immediately becomes apparent that social comparison following resource allocations should be more frequent with those with whom we are somehow close. Using the basketball example, we feel angry, cheated, and so on when another ACC team is invited to the national tournament: we are less likely to have such strong feelings when a Pac-10 school is granted an invitation, probably because we won't bother comparing our team with the latter.

There are several means by which we may limit the damage done by unpleasant social comparisons (Wood & Taylor, 1991), one of which is to simply avoid the target of comparison. Mere exposure - such as through walking by the recipient of a big promotion in

the halls every day - may remind us of our shortcoming and trigger our envy. Or, we might anticipate more overt reminders of the other's success. For example, when two friends try out for a sports team but only one makes the cut, the "loser" in the tryout can anticipate having to hear about practices, the excitement of big games, and so on from his/her friend. Avoiding these reminders is much easier when a benefited other is distant. Those with whom we are unacquainted who make the team are unlikely to tell us about their experiences, and we are less likely to be reminded of our failed promotion if the recipient is sent to another department. It is proposed here that future contact may create distress when either a psychologically or physically close other is benefited. However, it is held that anticipated future interactions with a person who is close psychologically may not be as stressful as that experienced with a person who is close physically but not psychologically, in particular if the future contact is seen as providing repeated reminders of the benefit to that person.

Target of comparisons. We can also change our perceptions of the comparison target, but this is more difficult with immediate others. Besides avoiding the comparison target, another tactic for avoiding unpleasant comparisons is to convince ourselves that we are dissimilar to the other, so that the person is no longer a relevant comparison standard (Wood & Taylor, 1991). For example, an athlete from a small, rural county who fails to earn an athletic scholarship that is eventually awarded to a student from a large, urban county can comfort herself with the knowledge that large school athletics are typically of a higher quality that can't even compare with those at small schools. This option is less available when we believe that the other is somehow psychologically or physically close and is thus perceived as similar. Our athlete would find it more difficult to avoid comparison if she lost her scholarship to a student in another small and thus similar county. Another alternative is

to derogate the close other, as by making attributions about character or tactics, such as ingratiation, that may have resulted in the benefit. It should be easier to do this with a distant other, however, since there are costs in belittling one's friend or associate - such as losing a friendship, being close to someone we now dislike, and so on - such perceived costs may eliminate derogation as a viable option. Therefore, while we may be quite willing to label the victorious as a cheat, backstabber, suck-up, or workaholic when that person is not somehow close to us, we would be reluctant to attach such labels to those who are psychologically or physically proximal.

Self-Evaluation Maintenance and Social Comparison Jealousy/Envy

Tesser's (1988) self-evaluation maintenance model (SEMM), which involves a social comparison perspective, was mentioned in the preceding as bearing some similarity to the issues focused on in the present research. As a brief summary, this model proposes that our self-evaluation is increased when a close other - specifically a psychologically close other - demonstrates high performance along a dimension that isn't important to our self-concept and decreased when this strong performance pertains to a personally relevant dimension. At face value, the SEMM has a very strong resemblance to the varying responses that are predicted when close or distant others – without regard to the nature of the closeness - are unfairly rewarded. More specifically, it appears similar to the comparison process that occurs when one is outperformed along a dimension that is highly relevant to one's self-concept. Here, one experiences greater negative emotions when the superior performance is by a close rather than distant other because the former is judged to be a more valid comparison standard. However, Tesser's model deals more with comparisons resulting from inferior performance, while the research reported in the present document is not necessarily

concerned with instances in which one person clearly surpasses or outperforms another, but simply in instances in which two individuals of seemingly equal qualification are rewarded differently. For example, when two graduate students who are in most measurable respects equal are allocated an unequal amount of scarce office space, the decision to provide one student with more space would not reflect the other's superior performance, as addressed in the SEMM, but was likely determined by simple issues of logistical efficiency. Despite this, the less rewarded student might still feel envy and deprivation, even though s/he knows that this does not indicate that the other student is somehow superior and/or favored. An additional difference is that the SEMM sees this phenomenon as resulting almost exclusively from close others being seen as a more relevant (i.e., more psychologically close) standard of comparison, but it is proposed here that there are additional processes that may account for this effect, some of which I have already addressed.

The SEMM has assumed a prominent role in explaining the emotions of jealousy and envy, both of which might occur as a result of dissimilar resource distributions. Jealousy and envy are often used interchangeably, but they are not conceptually identical (Tangey & Salovey, 1999). While jealousy deals primarily with fear of losing the attention of a desired other (e.g., romantic partners, friends, relatives, and so on), envy is simply the coveting of another's possessions, relationships, and so on. Salovey and Rodin (1984) distinguished the two concepts by labeling the former as "social-relations jealousy" and the latter as "social comparison jealousy". While jealousy research has focused primarily on the social-relations type (e.g., Salovey, 1991), which is not especially applicable to the current phenomenon of interest, the social-comparison type shares several similarities with explanations already discussed (Salovey & Rodin, 1984). For example, while one may certainly feel envious

when a dissimilar other is benefited relative to oneself, social comparison jealousy is more likely to occur when the coveted other is similar, and this jealousy is likely to make one anxious about having to interact with the benefited other in the future. While it is clear that proximity, either physical or psychological, should serve as substantial moderators of these relationships, it is directly addressed in little, if any, of the research addressing social-comparison jealousy.

Relative Deprivation

As noted earlier, social psychological theories addressing relative deprivation may be particularly relevant to how one responds when benefits are conferred on close - potentially similar - others. Relative deprivation theory is also an offshoot of social comparison theory. Crosby (1976) proposed five factors that are necessary to experience relative deprivation. One of these is that one must believe that the desired outcome is obtainable. In injustice situations, one feels greater entitlement to the outcome and that it is within one's reach if a similar other receives a benefit. This is similar to research investigating the link between frustration and aggression, which has found that aggression is greater as one gets closer to achieving one's desired goal (Harris, 1974). When the other is not close in some way, the desired reward might not feel as achievable. Relative deprivation theory might also predict that the injustice seems greater when the better-rewarded person is somehow proximal because it feels more "in your face", such as when the other is physically proximal, making it more difficult to avoid or forget. For example, research has found that poor people living near affluent areas experience more health problems than those living near other impoverished areas or distant from affluent areas (Hou and Myles, 2004).

Mark and Folger's (1984) Referent Cognitions Theory (RCT) describes relative deprivation as the result of three mental simulation processes. One of these is referent outcomes, or simulations of how one's current circumstances could have turned out better or worse. Greater deprivation occurs when one perceives higher referent outcomes, or imagines that one could have been better rewarded. Perhaps high referent outcomes are more likely to occur because mental proximity increases the belief that this outcome was more attainable. RCT predicts that relative deprivation is also the result of one's simulated justifications, or the process by which one's outcomes are determined. Relative deprivation occurs when one can imagine higher justifications or a more judicious means of distributing a desired construct. Both higher referent outcomes and higher justifications might be more easily imagined when the superior other is somehow close because of the aforementioned ease of perceiving greater similarity and a greater belief that similar rewards should result. Relative deprivation theory also is dissimilar to the current topic of research in some respects. Relative deprivation theory is concerned chiefly with different comparison standards in which the outcomes themselves are different, such as when one chooses to compare oneself with either a better or less rewarded other. In the injustice scenarios discussed thus far, the extent to which the other is unfairly benefited has remained constant; only the mental distance between the comparison others has varied.

Current Research: Overview of Current Studies

The present research was conducted in an attempt to uncover whether the phenomenon proposed by Aristotle is indeed valid - if one is apt to be more upset when a close rather than distant other is unfairly rewarded over oneself, whether and how the nature of closeness (psychological or physical) affects responses, and, if this phenomenon were

demonstrated with either type of closeness**,** to attempt to ascertain the most likely explanations for the phenomenon. Some previous studies have addressed how individuals respond to being outperformed by close versus distant others, but have not attempted to distinguish psychological and physical closeness. Further, little research has investigated responses to injustice, or instances in which outperformance appears unfair or due to circumstances beyond one's control. The current research investigated situations in which two apparently equal individuals were allocated unequal amounts of a non-mutually-exclusive resource (i.e., resources which can potentially be allocated to both individuals, rather than to one or the other), and in which the better-allocated other was psychologically and/or physically close or distant. As an example, imagine two seemingly equal graduate students, one who receives funding for the upcoming semester, and one who does not. Will the person denied funding respond differently if the funded student is psychologically close (e.g., a buddy) and/or physically close (e.g., an officemate in the same program), rather than someone who is more distant (e.g., not a close friend and/or in a different program)?

Six studies were conducted to investigate experimentally responses to injustice as a function of proximity to the "injustice beneficiary" (IB) and oneself. In the following experiments, participants were asked to mentally simulate instances in which either a close or distant other – with closeness being psychological and/or physical **-** received a nonshared benefit, despite no clear reason why the preferential benefit allocation occurred. Three of these were exploratory studies, presented here only briefly as they pertain to the development of the previously outlined model. A more detailed presentation of the methods and results of these studies can be viewed in Appendices A, B, and C for Studies 1, 2, and 3, respectively.

After these initial studies, three more studies were conducted to further refine and directly test the hypothesized model.

CHAPTER II

EXPLORATORY STUDIES

Study 1

Participants read vignettes in which they were asked to imagine that tuition was being raised at all public universities within the state of North Carolina, including UNC-CH. They were told that the increase at UNC-CH was of a greater magnitude than that of either a close or a distant university. The consequences of this increase were also manipulated, so that they were either neutral (participants could afford the increase) or negative (participants could not afford the increase). Thus, the experiment employed a 2 x 2 design. Next, participants completed response-scale questions evaluating the quality of the tuition increase and how this increase made them feel.

In terms of how proximity influenced participant affect, although a significant main effect was not obtained for proximity, there was a marginally significant interaction between similarity and consequences. Tests of simple main effects found that negative affect did not differ significantly based on proximity when the consequences were negative. When the consequences were neutral, however, significantly greater negative affect was reported when the rewarded other was similar rather than dissimilar. In summation, this research provided tentative evidence that negative affect is greater when a close rather than distant group is given preferential treatment over one's own.

Study 2

Participants were presented with four different vignettes in which an equal other was allocated a desired resource over oneself. Differing from the previous study, preferential treatment was conferred upon a single individual rather than an entire group. These scenarios included receiving a smaller annual bonus than another coworker, parents providing less tuition assistance to oneself than to another sibling, having one's own scholarship application denied while an equal fraternity member's was accepted, and having one's class instructor accept another student's tardy paper while rejecting one's own. There was a single manipulated variable, with the proximity of the IB being either close or distant, with no attempt to differentiate physical and psychological proximity. After each scenario, participants evaluated the allocation and predicted the feelings they believed the allocation would produce.

In the scenario involving the bonus allocation (labeled the "Work" scenario), participants reported experiencing significantly more negative emotions when the IB was near rather than distant. Those in the near IB condition were also significantly more likely to view the unequal reward allocation as being the result of favoritism and less likely to believe this decision was made for an adequate reason. For the scenario involving the scholarship application (labeled the "Fraternity" scenario), greater negative affect was reported in the near condition, and this difference was marginally significant. Additionally, participants were less likely to believe that the allocation decision was made for valid reasons in the near condition, once again at a marginally significant level. There were no significant differences based on proximity for the other two scenarios. As in Study 1, this study provided tentative

evidence that greater negative affect is experienced when a close rather than distant other is given preferential treatment over oneself.

Study 3

The next study was undertaken to more directly test the hypothesized model, providing further clarification of two aspects of prior findings: 1) What is meant by "close." Here, two conceptually different types of closeness, physical and psychological, were investigated. Participants read vignettes in which another person, portrayed as either psychologically close or neutral and either physically close or distant, was provided with an unshared resource. 2) Why it is more upsetting when a contiguous other receives a desired benefit. To do this, several additional measures probing perceptions of affect, fairness, and future interactions were introduced, and were incorporated in an elaborated version of the original hypothesized model. This expanded model can be viewed in Figure 1.

Participants were exposed to three different scenarios, including the Work and Fraternity scenarios that were used in the previous study and a new scenario, known as the College scenario, in which one was denied admission to a desired university while another person was accepted. Using a 2 x 2 design, psychological and physical proximity were independently manipulated as either high or low. Measures for this study included those used in Study 2, as well as measures of perceived similarity between oneself and the IB, perceived psychological proximity with the IB, perceived physical proximity with the IB, self-esteem, belief in a just world (BJW), and the endorsement of normative statements pertaining to equality and equity.

The results were analyzed primarily by attempting to estimate the model presented in Figure 1 using structural equation modeling. Results were partially as hypothesized. As

perceived psychological proximity increased, so did perceived similarity to the IB, and as perceived similarity increased, so did the perception of unfairness. Additionally, mediational analyses indicated that the perception of similarity was at least partially necessary in order for psychological proximity to predict unfairness. As perceived unfairness increased, negative affect increased, with perceived unfairness mediating the prediction of affect by similarity. Future interactions were routinely predicted by psychological proximity but not by physical proximity. Contrary to predictions, an increase in perceived future interactions led to increased positive affect.

In sum, results demonstrated clearly that physical and psychological proximity do not determine identical responses to injustice. While the effects of psychological proximity on similarity and future interactions were generally robust, the effects of physical proximity were generally weak. We are likely to see ourselves as similar to psychologically, but not necessarily physically, close others and, because we believe that similar others should be rewarded equally, similarity leads to greater perceptions of unfairness, and hence greater negative affect. Psychological, but not physical, proximity also predicted a perception of future interactions, but this perception of future interactions with the IB did not lead to increased negative affect as was predicted; instead, negative affect decreased as future interaction increased.

The exploratory studies thus demonstrated that it generally feels worse when a close rather than a distant other is rewarded over oneself, and that the reasons why this occurs differ based on whether the proximity is chiefly psychological or physical. However, some methodological shortcomings and unresolved issues were identified in the exploratory studies, and a set of studies was designed to address these. The upcoming study in this

sequence was developed for purposes of refining and testing the hypothesized model. In studies 5 and 6, explicitly hypothesized antecedents within the model were tested.

CHAPTER III

STUDY 4

This study was designed as a replication of Study 3 in an attempt to gain greater depth in understanding of the processes of concern. Specifically, it was designed to include measures that it was thought had not been sufficiently included in Study 3, namely specific measures of factors which had been hypothesized as possible antecedents of observed effects, in particular, social comparison, deservingness, control, and relative deprivation. One method by which this was done was through the inclusion of several open-ended measures, which asked participants whether and why they were upset with the allocation decision. There were three hypotheses associated with these measures: 1) There would be more frequent references to fairness, equality, or equity by participants in the high psychological proximity than in the low psychological proximity condition. 2) Compared to participants in the low psychological proximity condition, participants in the high psychological proximity conditions would report more frequently being upset because they couldn't understand why the IB was better rewarded than oneself. 3) Participants in the conditions that were either high in psychological or physical proximity would make more frequent references to reminders of the disparate allocation, relative to participants in the low physical and psychological proximity conditions.

Potential causal mechanisms were also investigated with the addition of several new response-scale measures. While it was speculated in examining results in Study 3 that anticipated interactions led to greater perceived reminders of the discrepant allocation, this

was not measured directly in that study. Therefore, a direct measure of perceived reminders was added to test this prediction. Specific measures were also added to test deservingness, relative deprivation, social comparison, and control.

It was previously proposed that high levels of either physical or psychological proximity influence both perceptions of relative deprivation and social comparisons. Because of this, it was hypothesized that participants would perceive greater relative deprivation and report engaging in more frequent social comparisons when either psychological or physical proximity was high rather than low. An interaction between these two forms of proximity was not necessarily expected. It was thought, however, that a loss of control would be mentioned as more likely to occur when psychological, but not necessarily physical, proximity was high. Lastly, several measures evaluating the IB were also added. It was believed that perceptions of the IB would not change as a function of either psychological or physical proximity, demonstrating that, although they would be upset over the allocation decision, participants would not necessarily blame or derogate the other in any conditions.

Another goal in this study pertained to refinement of the original hypothesized model that was tested in Study 3 (i.e., Figure 1). This was done in two ways. The first was to attempt to improve several of the measures in the third experiment that had not demonstrated adequate reliability, including the Future Interactions measure in the Work scenario, the Normative Endorsement measure in the College scenario, and the Perceived Favoritism measures across all three scenarios. The second was to develop a better-fitting model. The revised model, shown in Figure 2, adds the Perceived Reminders measure, in which future interactions were hypothesized to predict increased reminders, leading to greater negative

affect. Other modifications were intended to be made post-hoc, possibly including some of the additional measures outlined above into the constructs of Perceived Unfairness and Affect if there was theoretical justification to do so. It was hoped that these modifications would provide more structurally sound indicators of Unfairness and Affect. For example, in Study 3, the BJW and self-esteem loadings were generally weak, albeit statistically significant. If this trend continued in Study 4, these factors would be dropped, and/or appropriate factors such as Deservingness and Social Comparison would be added to achieve improved fit. While it is acknowledged that such post-hoc theorizing is often discouraged, it should be noted that these proposed modifications would alter only the measurement model, or the means by which Unfairness and Affect were measured, rather than the structural model, or the proposed antecedents of Unfairness and Affect. In other words, the essence of the hypothesized model would remain the same despite these alterations. Furthermore, these changes were to be enacted only if they also seemed theoretically justified, and would be subject to cross-validation in subsequent studies.

One addition to Study 4 (and in subsequent studies) was the investigation of possible gender differences, not explored previously. There were several reasons why males and females may have responded differently although, if found to exist, it was not expected that any differences would be large. Some research has found that women tend to have greater expectations of friendship loyalty (e.g., Thomas & Daubman, 2001); for this reason, females may be more likely to perceive the reward allocation as a betrayal, leading to greater negative affect and fewer perceived future interactions. There is also evidence to indicate that women are more likely to engage in social comparison processes (e.g., Rankin, Lane, Gibbons, & Gerrard, 2004; Sheldon, 2004). Interestingly, the Brosnan and de Waal (2003) research with

monkeys found significant differences only in females, noting that females were more attuned to reward distributions than were males, although there were no expectations that this finding would replicate in this or subsequent studies.

Method

Two-hundred and seventy-two UNC-CH students (29% male, 71% female) recruited from the participant pool at UNC-CH participated in this experiment. The materials duplicated those in Study 3, except for several modified measures, additional measures, and an additional scenario.

Vignettes and Manipulations

Participants were presented with four different scenarios, in which a seemingly equal other was rewarded a non-exclusive resource while they were not. The College, Fraternity, and Work scenarios were virtually identical to those in the previous study. In the College scenario, participants were asked to imagine that they were high school seniors who were denied admission to their preferred university while another student was accepted. For the Fraternity scenario, a participant's application for a partial scholarship was denied and another fraternity member received the scholarship. In the Work scenario, participants worked at a telecommunications company in which they received a smaller annual bonus than another employee. To allow for the within-subjects analysis of the independent variables, an additional scenario was added to this study. This scenario, hereafter known as the Job scenario, asked participants to imagine that they failed to land a highly desired marketing job that was instead offered to another student. These scenarios and their accompanying manipulations can be seen in Appendix D.

In each scenario, both psychological and physical proximity of oneself to the IB were manipulated. Participants who were psychologically close to the IB were described as "close friends" or "good friends." The acquaintanceship was described as casual in the neutral psychological proximity condition. The physical proximity manipulation was described as high (i.e., a fellow student at one's high school, a member of one's fraternity, a coworker in an adjoining cubicle, or a neighbor) or low (a student at a high school across town, a member of another fraternity, a coworker in an office across town, or a student living across town). For each scenario, participants were told explicitly that they were equal to the better-rewarded person along dimensions relevant to the decision. For example, in the Work scenario, participants were told that the self and the other employee were of similar age, education, and seniority, with approximately equal job performance records.

Each scenario was preceded by the following instructions in order to focus participants' attention on the specific manipulations: "Please read the following scenario very carefully, as you will be asked several questions that test how well you remembered the information presented below. You will then be asked a series of questions regarding how you believe you would feel if you were actually placed in this scenario." After each scenario, participants were again told to make sure they had read each vignette carefully before answering the questions, and that they should not reread any scenario once they had begun answering questions. These instructions were designed to insure clear participant understanding of the manipulations.

Measures

After each vignette, participants completed a set of measures that were virtually identical across scenarios. A sample set of questions can be found in Appendix E.

Manipulation checks, similarity, reminders, and future interaction measures. As in previous studies, participants first completed several manipulation checks that were designed to measure participants' perceived physical and psychological distance from the IB and to increase the salience of the manipulation.[1] Next, participants answered several questions assessing the extent to which they believed they were similar to the IB (e.g., "My academic record is similar to that of the student who was admitted to the university"); the frequency which they currently interacted with the IB based on psychological proximity (e.g., "Based on the amount of emotional closeness between myself and the fraternity member receiving the scholarship, I probably talk with this person on a frequent basis"); the frequency which they currently interacted with the IB based on physical proximity (e.g., "Given where the fraternity member receiving the scholarship lives, I probably talk with this person on a frequent basis"); and the frequency with which they believed they would interact with the IB in the future (e.g., "I will probably try and avoid interacting with this other employee in the future").

A Perceived Reminders measure was also included; this assessed the extent to which participants believed that their interactions with the IB would remind them of their failure to obtain the desired benefit. This measure dealt more specifically with indirect, rather than direct, reminders of the allocation decision. In other words, participants were not asked if they believed the IB would gloat or "rub it in" purposely, but only if they believed the mere presence of the IB would remind them of their failure and/or if the IB would unintentionally

[1] In this experiment, physical and psychological proximity were both manipulated and measured. For the sake of simplicity, the manipulated proximity variables will be referred to as Manipulated Physical Proximity and Manipulated Psychological Proximity, while the dependent measures will be referred to as be referred to as Measured Physical Proximity and Measured Psychological Proximity.

make reference to the unequal allotment. A single item was also added to verify if participants believed the IB would intentionally remind them of this allocation.

There was concern that the primacy and/or recency of the Similarity and Anticipated Future Interaction measures might disproportionately influence participant responses to the affect measures that followed. For example, it seemed plausible that memories of high similarity (or lack thereof) might be better retained than information regarding future interactions if participants completed the Similarity measures after the Anticipated Future Interaction measures. In such a case, it was thought that this might unduly influence the extent to which perceived similarity (rather than future interactions) resulted in Negative Affect. To prevent this, the presentation order of the Similarity and Anticipated Future Interaction measures was counterbalanced. Similar counterbalancing was used in Study 3, and there was no significant evidence of order effects.

Affect measures. Participants answered questions regarding their feelings following the allocation decision; questions relating to relative deprivation, or the extent to which learning of the IB's benefit made participants feel worse; and social comparison, or the extent to which participants believed they compared their outcomes with those of the IB. Items measuring how the allocation decision would affect participants' sense of control were also included. Self-esteem items from the Rosenberg self-esteem scale were also incorporated, preceded by a statement such as "The decision to reject my application for a scholarship makes me feel the following:"

Perception of Fairness measures. As in previous experiments, participants evaluated the quality of the allocation decision and indicated their endorsement of normative beliefs relevant to each scenario. They also answered several questions assessing deservingness, or

the extent to which they believed they deserved the desired outcome, and whether they believed favoritism was exhibited towards the IB. There were also several questions adopted from Lipkus, Dalbert, and Siegler (1996), measuring participants' Belief in a Just World (BJW; Lerner, 1980), or the extent to which they believed that people are generally deserving of the outcomes they receive. Finally, a measure of participants' evaluation of the IB was also included. These included the extent to which the allocation made the IB seem different from oneself, how their opinions of the IB changed as a result of the allocation, and if the benefited person earned the resource through unfair practices.

Three open-ended measures were also added in this experiment. One of these followed the perceived reminders measure, asking participants to explain why they believed being reminded of the IB's reward allocation would make them feel better or worse. The next question followed the Feelings measures, with participants being asked to explain why the allocation decision made them feel the emotions they reported. The final open-ended question followed the relative deprivation questions; it asked participants to explain why being made aware of the IB's reward made them feel better or worse. After each of these questions, participants were given ample room to write up to a paragraph-length response.

Participants were exposed to all four scenarios (College, Fraternity, Work, and Job) and all four manipulation combinations. The manipulation combinations were completely counterbalanced, while the scenarios themselves were partially counterbalanced, with four possible scenario orders (College, Fraternity, Work, Job; Fraternity, Work, Job, College; Work, Job, College, Fraternity; or Job, College, Fraternity, Work). The presentation order of the Similarity and Anticipated Future Interaction measures was also counterbalanced.

Results

Measure Reliability

Cronbach's alpha was used to assess reliability, and the results are presented in Table 1. Reliability was generally adequate, although it was somewhat mediocre in the Perceived Reminders, Social Comparison, and Control measures across all scenarios, and poor for the Perceived Favoritism measures.

Manipulation Checks

The manipulation checks were evaluated using both between-subject and within-subject analyses. The between-subjects analyses used separate Multivariate Analyses of Variance (MANOVA) for each scenario, with Manipulated Psychological Proximity and Manipulated Physical Proximity as the independent variables and Measured Psychological Proximity, Measured Physical Proximity, Frequency of Present Interactions, Perceived Reminders and Perceived Similarity of Self to IB serving as dependent variables. The manipulation checks were also compared within-subjects, that is, for each measure, a repeated-measures ANOVA was conducted, with Psychological Proximity and Physical Proximity serving as independent variables. The results of the between-subjects and within-subjects analyses were theoretically identical (i.e., they conveyed the same information regarding the effectiveness of the manipulations) except as noted. For the sake of simplicity, the results of the within-subjects analyses are presented here.

Participants perceived significantly higher psychological proximity when this variable was manipulated as close ($M = 12.23$) rather than distant ($M = 6.90$), $F(1, 179) = 1032.64$, $p < .001$. The physical proximity manipulation was also effective, with significantly higher perceived physical closeness when this was manipulated as high ($M = 11.47$) versus low (M

= 8.4), F (1, 179) = 272.24, $p < .001$. For the frequency of present interactions based on psychological proximity, responses differed as expected based on the psychological proximity manipulation (for high $M = 5.94$, for neutral $M = 3.36$), F (1, 179) = 627.48, $p < .001$. Similar results also occurred for the frequency of present interactions based on physical proximity, with higher perceived interactions when manipulated physical proximity was high ($M = 5.74$) instead of neutral ($M = 4.06$), F (1, 179) = 345.90, $p < .001$. Participants saw themselves as more similar to the IB when psychological proximity was high ($M = 18.28$) rather than low ($M = 17.51$), F (1, 179) = 29.63, $p < .001$, and engaging in more frequent future interactions with the IB when psychological proximity was high ($M = 15.61$) rather than low ($M = 11.73$), F (1, 179) = 182.19, $p < .001$. Participants expected more frequent future interactions with the IB when physical proximity was high ($M = 13.92$) rather than low ($M = 13.41$), F (1, 179) = 4.93, $p = .03$, but not necessarily greater similarity, F (1, 179) = .83, p = .36. All other main effects and interactions for these variables were either nonsignificant or, if significant, not contrary to predictions.

The only measure that did not turn out as expected was that of perceived reminders. For the within-subjects analysis of this variable, reminders did not differ as a function of either physical proximity, F (1, 179) = 2.65, $p = .11$, or psychological proximity, F (1, 179) = .18, $p = .68$. The between-subjects analyses of each individual scenario yielded a more complex picture. For the college scenario, reminders did not differ based on physical proximity, F (1, 226) = .73, $p = .39$, however, there was a marginally significant interaction between physical and psychological proximity, F (1, 226) = 2.95, $p = .09$. An analysis of the simple main effects showed that the two high physical proximity cells differed marginally from the physically distant and psychologically distant condition; however, they did not

differ significantly from the physically distant and psychologically close condition. Similar results occurred in the job scenario, with a nonsignificant main effect for physical proximity, F (1, 226) = 1.02, p = .31, but a significant interaction, F (1, 226) = 5.53, p = .02. The main effects for both physically close groups were significantly greater than for the physically distant, psychologically close group, but not for the physically distant, psychologically neutral group. In the fraternity scenario, neither the main effect for physical proximity, F (1, 235) = 1.28, p = .26, psychological proximity, F (1, 235) = 2.41, p = .12, nor the interaction, F (1, 235) = .35, p = .55, was significant. In the work scenario, however, participants' perceived reminders significantly differed as a function of psychological proximity (for close, M = 13.96, for neutral, M = 12.12), F (1, 223) = 7.84, p = .006, and differed marginally as a function of physical proximity (for close, M = 13.55, for distant, M = 12.45), F (1, 223) = 2.94, p = .09. In summary, there was some evidence that reminders would occur more often during instances of high psychological or physical proximity, but these results were very equivocal.

Open-Ended Measures

Each of the 12 (3 in each scenario) open-ended response questions was coded independently by the experimenter and another trained evaluator. Any discrepancies in coding were resolved through discussion. The responses were assigned to one of 5 categories: 1) References to equality, equity, or fairness, with responses including statements that the self and the IB were equally qualified and/or equally deserving, or that the allocation was unfair; 2) Feelings of jealousy or envy: 3) References to being reminded of the other's allocation; 4) Not knowing why other was benefited rather than the self, with responses including feelings of helplessness or a loss of control; 5) All other responses.

For each question, separate chi-square analyses were conducted to see if response patterns differed based on either physical or psychological proximity; however, none of these analyses were significant ($p > .13$). The response patterns were also collapsed across question and scenario, in order to record the gross number of times each response was recorded as a function of both physical and psychological proximity. Exploratory analyses were then conducted to test the open-ended question hypotheses. There were more frequent references to fairness, equality, and/or equity in the psychologically proximal condition (214) versus the psychologically neutral condition (204) and also when physical proximity was high (202) versus low (196). However, participants did not report more frequent questions about why the IB was selected over them (for psychologically close, 64, for distant, 66). References to being reminded of the allocation were mentioned more frequently when participants were physically close to the IB (155), than when the IB was physically distant (140), and when they were psychologically close to the IB (152) than when they were psychological distant (143). Although these results offered partial support of hypotheses, they must be interpreted with caution, since they compared only frequencies that were collapsed across scenario and question and were not evaluated using inferential statistics.

Analyses for Possible Order Effects

Although the hypothesized model was tested primarily using SEM models, a set of ANOVAs was performed to test for possible order effects. As with Study 3, the decision evaluation items and the items measuring reported feelings resulting from the allocation decision were combined, producing a measure of overall affect with possible scores of 8 to 64. For each scenario, these were analyzed initially using 2 (Gender) x 2 (Psychological Proximity: Close or Neutral) by 2 (Physical Proximity: Close or Distant) by 2 (Measure

Order: Similarity measure presented first or Anticipated Future Interactions presented first) x 6 (Scenario Order) ANOVAs. There were no significant main effects for the two order effect variables (Measure Order and Scenario Order). While there were a number of interactions involving the order effect variables and other variables, none of these were theoretically meaningful nor did they appear consistently across different scenarios.[2]

Structural Equation Models

Overview of analyses. Several SEM models were used to predict the data, with identical models being run across scenarios. For each, the models were tested using AMOS version 5.0 (Arbuckle, 2003) and maximum likelihood estimation. As recommended by Hoyle and Panter (1995), overall model fit was assessed using the traditional χ^2 goodness-of-fit index, the Comparative Fix Index (CFI; Bentler, 1990), the Incremental Fit Index (IFI; Bollen, 1989a), the Root Mean Square Error of Approximation (RMSEA; Steiger & Lind, 1980) and its 90% confidence interval (90% CI). The χ^2 goodness-of-fit index measures the extent to which the model cannot predict the observed data, with nonsignificant values indicating no difference between the predicted and observed data. The CFI and IFI both measure the extent to which the hypothesized model predicts the data better than a model that assumes zero predictive ability. Both indices vary between 0 and 1, with higher values indicating a better fit. There are varying recommendations regarding what value indicates a close fit, with some researchers advocating .90 (Bollen, 1989b; Hoyle & Panter, 1995) and others suggesting .95 (Schumacker & Lomax, 2004). The RMSEA is another estimate of the discrepancy between the model and the data, corrected for model complexity. Values less

[2] Here and in subsequent results sections, the term "consistently" will be used to indicate whether findings regularly occurred across different scenarios within a study; i.e., did the finding generalize to a majority of studies within the experiment? This term is not meant to be synonymous with "statistically significant".

than .05 are desired, but values between .05 and .10 are considered adequate (Browne & Cudeck, 1993).

Analyses of hypothesized model. A series of SEM models was used to test the hypothesized model. For each scenario, the models were estimated as originally hypothesized in Figure 2 (for Manipulated Psychological Proximity and Manipulated Physical Proximity, these variables were dummy coded, 0 = distant/neutral, 1 = close). The resulting path diagrams for the College, Fraternity, Work, and Job scenarios are presented respectively in Figures 3, 4, 5, and 6. The variance estimates for these models are presented in Table 2, and the fit indices for these models are presented in Table 3. In looking at the path diagrams, the College scenario turned out exactly as predicted. As perceived psychological proximity increased, so did perceptions of similarity, leading to increased perceptions of unfairness, and finally greater negative affect. Both psychological and physical proximity predicted increased future interactions, which in turn predicted greater reminders, with an increase in reminders predicting increased negative affect. Hypotheses were less well-supported in the other three scenarios. Across the Fraternity, Work, and Job scenarios, physical proximity did not significantly predict future interactions, and psychological proximity did not predict similarity in the Work scenario. Also across these three scenarios, the perception of future interactions led to fewer perceived reminders, opposite of what was hypothesized, although reminders still predicted increase negative affect. Equally disquieting was the less than desired fit across all scenarios. One of the possible culprits of this was the poor loading of several measures on the constructs of perceived unfairness and affect, including the endorsement of normative statements, BJW,

and self-esteem. Because of this, exploratory models were conducted to try to improve model fit by incorporating additional variables into these two constructs.

Modifications of hypothesized model. As previously mentioned, the current study included several new variables, and it seemed justified to try to assimilate most of them into the model. This included adding Deservingness to the perceived unfairness factor, which tended to load well in all four scenarios, with standardized loadings ranging from .68 to .76. For affect, the variables of relative deprivation, social comparison, and control were added. Of these, only relative deprivation demonstrated consistently strong loadings across scenarios, ranging from .62 to .74 (for social comparison, $\beta \leq .40$, for control, $\beta \leq .47$). The loadings for BJW, normative statement endorsements, and self-esteem were judged inadequate, and were dropped from the model.

The resulting models, hereafter referred to as the "modified model" for the four scenarios can be viewed in Figures 7 through 10, along with their estimated variances in Table 4 and the fit indices in Table 5. As can be seen, these alterations did not result in a noticeable change in the loadings in the structural model or greatly improve the fit of the overall model; however, the factor loadings for both Unfairness and Affect were considerably improved over the former models. In addition, the prediction of Unfairness by Similarity and Affect by Perceived Reminders was also improved.

Mediational analyses. To test for mediation, bootstrapping (using 1000 samples; Shrout & Bolger, 2002) was used to derive 95% confidence intervals of total, direct, and indirect effects, and their corresponding standard errors. Here, direct effects represent the effects that are directly attributable to the predictor variable, while indirect effects are the extent to which the prediction of one variable by another is influenced by intervening

variables. There is evidence that mediation is taking place when an indirect effect is significant.

Mediational analyses were conducted in order to test the following model predictions: 1) One must perceive similarity between oneself and the IB in order for psychological proximity to predict unfairness. 2) In order for similarity to predict increased negative affect, one must perceive unfairness. 3) One must perceive future interactions with the IB in order for psychological proximity to predict perceived reminders. 4) One must perceive future interactions with the IB in order for physical proximity to predict perceived reminders. 5) Perceived reminders are necessary in order for future interactions to predict affect.

The estimated indirect effects of the five mediational pathways can be viewed in Table 6. Similarity mediated the prediction of unfairness by psychological proximity in all four scenarios. Also across all scenarios, the prediction of affect by similarity was mediated by perceived unfairness. Future interactions mediated the relationship between psychological proximity and reminders; however the effects were not in the hypothesized direction for the Fraternity, Work, and Job scenarios. For physical proximity and reminders, future interactions mediated this relationship only in the college scenario. Lastly, the prediction of affect by future interactions was mediated significantly by perceived reminders in all scenarios, but only in the predicted direction for the College scenario.

To determine if negative affect was more strongly influenced by physical or by psychological proximity, the indirect effects for manipulated psychological proximity, manipulated physical proximity, measured psychological proximity, and measured physical proximity were also examined. For the college scenario, psychological proximity was clearly a greater predictor of negative affect when this variable was either manipulated (for

psychological, β = -.15, for physical, β = -.01) or measured (for psychological, β = -.19, for physical, β = -.03). For the fraternity, work, and job scenarios, differences were small to nonexistent based on physical and psychological proximity, with values ranging from -.01 to .02.

Testing for gender differences. Possible gender differences were probed for by imposing a series of constraints upon the modified model. The first step was to produce a baseline model in which separate estimates were generated for males and females. Next, the loadings and variances in the measurement model (i.e., the perception of unfairness and affect factors, and the five observed variables associated with them) were constrained as equal for males and females, and this newly estimated model was compared with the baseline model**.** Measurement invariance would be indicated if the fit in this new model did not decrease as a result of these constraints; alternatively, it would indicate that males and females did not differ significantly along the measures of unfairness or affect. Finally, the structural model (i.e., the loadings and variances to the left of unfairness and affect in the path diagram) was also constrained as equal across gender, and its fit was compared with the previous model testing for measurement invariance. A nonsignificant decrement in fit here would indicate structural invariance, meaning the predicted antecedents of unfairness and affect did not differ as a function of gender. One could conclude that male and female responses did not differ significantly if both measurement and structural invariance were obtained.

This series of analyses was conducted for all four scenarios, and the results are presented in Table 7. Measurement invariance was obtained in all scenarios, and structural invariance was obtained in all but the Work scenario, indicating a near-absence of gender

differences. A closer examination of the loadings in the structural model in this scenario yielded two notable differences. For females, perceived reminders predicted affect significantly (β = -.31), but this was not so for males (β = .03). Also, the extent to which perceived similarity predicted unfairness was considerably smaller for females (β = .34) in comparison to males (β = .68). This did not raise great alarm, since this result did not generalize to the other scenarios; however, a note was made to ascertain whether the trend recurred in future studies.

Exploratory models. Additional analyses were undertaken to determine if psychological and physical proximity influenced mechanisms of the model in ways other than hypothesized. For physical proximity, this variable was a significant predictor of psychological proximity in the College, Fraternity, and Job scenarios (for College, β = .14, $p < .001$, for Fraternity, β = .14, $p < .001$, for Job, β = .16, $p < .001$). An inverse relationship was also found, with psychological proximity significantly predicting physical proximity in these same three scenarios (for College, β = .21 $p < .001$, for Fraternity, β = .31, $p < .001$, for Job, β = .22, $p < .001$). Physical proximity, however, was not a significant predictor of either perceived similarity or perceived unfairness in any of the scenarios.

Within-Subjects Analyses

A series of additional analyses was conducted to test additional variables that were not incorporated into the SEM models but were still hypothesized as potential mechanisms by which responses to injustice vary, including the frequency of social comparison with the IB, feelings of control, and evaluations of the IB. These variables were analyzed using separate repeated measures ANOVAs, with manipulated physical proximity and manipulated

psychological proximity serving as the independent variables.[3] These results can be seen in Table 8. As hypothesized, participants perceived more frequent social comparisons when the IB was psychologically close (M = 9.06) rather than distant (M = 7.96), and more physically close (M = 8.65) rather than distant (M = 8.37). Contrary to hypotheses, perceived control did not decrease as a function of psychological proximity, although means were in the hypothesized direction. Somewhat contrary to predictions, participants saw psychologically close others (M = 2.51) as less likely to intentionally remind them of the reward allocation than psychologically neutral others (M = 2.97), although the mean value was still low for both groups, suggesting that neither group believed the IB would gloat purposely, "rub it in", and so on. The evaluation of the IB was also more positive for psychological proximity (for high, M = 16.92, for neutral, M = 16.05), indicating that participants were less likely to expect a psychologically close IB to engage in unfair practices or purposefully trying to "one up" oneself.

Discussion

This study was undertaken primarily to refine the methodology utilized to test the hypothesized mechanisms by which proximity influences responses to injustice. As with Study 3, the current experiment offered only mixed support of the hypothesized model. Attempts to show that the type of proximity influenced the means by which negative affect increases were only partially successful. As predicted, the increase in negative affect was partially due to the belief that proximal others are similar to us. The perception of similarity in psychologically close others was clearly demonstrated across all but one scenario. As

[3] These within-subjects analyses and those in subsequent studies were also conducted with the addition of gender as an independent variable. No significant or meaningful gender differences were obtained. For the sake of simplicity, the results presented here are collapsed across gender.

similarity increased, the perception of unfairness increased across all scenarios. Mediational analyses also indicated the necessity of perceiving similarity in order for psychological proximity to predict perceived unfairness. Open-ended responses in which participants listed reasons for their upset offered additional evidence that this was more likely during instances of high psychological proximity. This increase in unfairness led to increased negative affect. Mediational analyses indicated that merely perceiving similarity in another was not sufficient; one must also perceive unfairness resulting from this similarity. Also as expected, the above findings did not generalize to physical proximity, indicating that we do not necessarily expect similarity with those who simply are physically close.

As with similarity, psychological proximity also predicted expectations of future contact with the IB; however, contrary to hypotheses, this was predicted by physical proximity in only one of the scenarios. Also diverging from hypotheses, in three of the four scenarios a perception of future encounters with the other led to a decreased, rather than increased, belief that other would unintentionally remind one of the resource dispersal. In line with predictions, however, as perceived reminders increased, so did negative affect. Open-ended measures also added tentative evidence that perceived reminders were more likely to occur when physical proximity was high.

In terms of whether psychological proximity or physical proximity had a greater influence on affect, results were inconclusive. In the College scenario psychological proximity was clearly a better predictor of affect than was physical proximity. However, differences between physical and psychological proximity were small in the other three scenarios. This absence of differences was unexpected in the Fraternity and Job scenarios, where psychological proximity was a clear predictor of similarity, leading to unfairness and

increased negative affect. However, in these scenarios, psychological proximity also predicted future interactions, which predicted decreased, rather than increased, reminders of other's benefit. Thus, the increase in negative affect via increased similarity was likely reduced by the decrease in negative affect via decreased reminders.

Despite these problems, the means of measuring/defining both unfairness and affect were improved upon in this study. Unfairness seemed to better reflect the belief in one's deservingness of the reward, one's perception of favoritism towards the IB, and one's evaluation of the quality of the allocation decision. As in the exploratory studies, neither belief in a just world nor endorsement of equity norms was satisfactorily indicative of participants' perception of unfairness. Affect was defined most appropriately as the feelings generated by the allocation and how one's own outcomes compared to those of the other, while self-esteem was again insufficiently representative of this construct.

Additional analyses indicated that social comparison processes were more likely when either physical or psychological proximity was high. Feelings of control were predicted to decrease when psychological proximity was high, but this prediction was not supported by either response-scale or open-ended measures. Despite these perceptions of unfairness and possibly future reminders triggering negative emotions, participants were not especially likely to blame or direct their upset towards the IB. They were not especially likely to believe the IB would remind them intentionally of their superior outcome, although they still tended to evaluate psychologically proximal IBs more positively.

The results of this study offer further support to the finding in prior studies that we find similarity in psychologically, but not physically, close others, so that when we are asymmetrically rewarded we find this unfair. But, as in past research, there was less

evidence that we necessarily expect either physical or psychological proximity to trigger greater negative affect because we anticipate reminders of this disparity in compensation.

CHAPTER IV

STUDY 5

The research outlined thus far seems to suggest that the perception of similarity between oneself and the IB is a critical predictor of one's response concerning a benefit given to another. To test the influence of this variable further, similarity in qualification was manipulated along with psychological and physical proximity, with the IB being described as either more than or as equally qualified as oneself. It was thought that a direct manipulation of this variable would provide more explicit evidence of the influence of perceived similarity upon perceptions of fairness and emotional affect.

When participants were less qualified than the IB, one would expect the influence of psychological proximity to become attenuated. While we tend to perceive psychologically close others as similar to ourselves, this belief should decrease if one were told of the other's superior qualifications. It was hypothesized that participants who were less qualified than their friend would be less likely to perceive unfairness, would see themselves as less deserving, would perceive less favoritism, and would evaluate the decision less negatively. This decrease in perceived unfairness was hypothesized to result in less negative affect. Even if one believes the allocation decision to be fair, however, reminders of one's deficient performance could still trigger negative feelings. Because of this, it was hypothesized that, regardless of qualification similarity, participants who perceived more future interactions, in

instances of both high physical and high psychological similarity, would continue to expect reminders of this allocation, leading to greater negative affect.

Method

One hundred and eighty-nine UNC-CH students (24% male, 72% female, 4% gender not reported) participated in this study in exchange for participant pool credit. The method for this study was unchanged from Study 4, with the following exceptions: 1) The open-ended measures were dropped from the current study, primarily because they did not yield significant differences in the previous experiment. 2) Several of the response scale measures that did not yield significant results and/or adequate model fit during previous experiments were also dropped. These included measures of self-esteem, belief in a just world, endorsement of equity norms, and control. 3) Minor modifications were made to those measures that still did not have adequate reliability, including Perceived Reminders, Social Comparison, and Perceived Favoritism. 4) In Study 3 and in Study 4, the presentation of the Similarity and Anticipated Future Interactions measures was counterbalanced to test for order effects. No reliable order effects were detected. Therefore this manipulation was eliminated from the current study. 5) A Similarity in Qualification manipulation was included, resulting in a 2 (Psychological Proximity: Close or Neutral) by 2 (Physical Proximity: Close or Distant) by 2 (Similarity in Qualification: Equally Qualified, or Less Qualified than IB) between-subjects design. For the similarity variable, participants were told either that they were similarly qualified to the IB (e,g, "You're both of similar age and demographics, and have comparable academic and service achievements."), as was done in previous studies, or that the IB had superior qualifications (e.g., "You're both of similar age and demographics,

although you do have inferior academic and service achievements."). A copy of these new manipulations can be viewed in Appendix F.

As in Study 4, participants were exposed to all four possible cells in the Psychological Proximity and Physical Proximity variables and all four scenarios, which were both counterbalanced as before. Of the four scenarios to which each participant was exposed, in two the IB was more qualified than the self; in the other two, the IB was as equally qualified as the self. This similarity in qualification manipulation was staggered across scenarios (i.e., when reading the 4 scenarios, this manipulation was presented as Similar, More Qualified, Similar, More Qualified; or More Qualified, Similar, More Qualified, Similar).

Results

Unless otherwise noted, the analysis strategy for this study was identical to that in Study 4. The reliability analyses are presented in Table 9, and were acceptable for all measures.

Manipulation Checks

As before, the manipulation checks were analyzed both between and within-subjects, and the results were essentially identical; the within-subjects results are presented here. Significantly greater psychological proximity was perceived by participants when this variable was manipulated as high (M = 12.47) versus neutral (M = 6.76), F (1, 187) = 1032.72, $p < .001$. Measured physical proximity was also higher based on the physical proximity manipulation (for high, M = 11.58, for low, M = 7.94), F (1, 187) = 355.79, $p <$ .001. Present interactions due to psychological proximity also differed as a function of psychological proximity (for high, M = 5.98, for neutral, M = 3.32), F (1, 187) = 626.58, $p <$

.001, as did present interactions due to physical proximity as a function of physical proximity (for high, $M = 5.78$, for low, $M = 3.87$), F (1, 187) = 370.01, $p < .001$. Future interactions were judged as more likely for both psychological proximity (for high, $M = 16.25$, for neutral, $M = 12.94$), F (1, 187) = 141.99, $p < .001$, and physical proximity (for high, $M = 16.25$, for low, $M = 12.94$), F (1, 187) = 654.24, $p < .001$. Reminders were also seen as more frequent as a function of both psychological proximity (for high, $M = 18.50$, for neutral, $M = 17.41$), F (1, 187) = 7.82, $p = .006$, and physical proximity (for high, $M = 19.69$, for low, $M = 16.22$), F (1, 187) = 117.41, $p < .001$. Similarity differed only marginally based on psychological proximity (for high, $M = 14.38$, for neutral, $M = 13.56$), F (1, 187) = 2.74, $p = .10$; however, this was not unexpected. It was predicted that the similarity in qualification manipulation would decrease the influence of psychological proximity on perceived similarity. Similarity did not vary as a function of physical proximity, F (1, 187) = 2.01, $p = .16$

Because participants were exposed twice to both levels of the similarity in qualification manipulation, a within-subjects analysis of the effectiveness of this manipulation was not appropriate. Instead, separate 2 (Psychological Proximity) by 2 (Physical Proximity) by 2 (Similarity in Qualification) between-subjects ANOVAS were conducted for each scenario. Participants who were told they were as equally qualified as the IB perceived greater similarity across all scenarios (for College, $M = 19.03$, for Fraternity, $M = 18.75$, for Work, $M = 19.02$, for Job, $M = 18.82$), relative to those who were told the IB was more qualified (for College, $M = 8.67$, for Fraternity, $M = 9.00$, for Work, $M = 10.18$, for Job, $M = 8.22$), for College, F (181) = 451.68, $p < .001$, for Fraternity, F (181) = 417.58, $p < .001$, for Work, F (181) = 368.12, $p < .001$, for Job, F (181) = 670.72, $p < .001$. There

were no significant interactions that were contrary to predictions. In sum, the manipulations were successful across all scenarios.

Structural Equation Models

Analyses of hypothesized model. The modified model from Study 4 was analyzed with the addition of the similarity in qualification manipulation, which was dummy coded (0 =less qualified than IB, 1 = equally qualified as IB). The resulting path diagrams for the College, Fraternity, Work, and Job scenarios can be seen in Figures 11, 12, 13, and 14, respectively, the variance estimates in Table 10, and the fit indices in Table 11. The direction and size of loadings were exactly as hypothesized, although overall model fit was somewhat mixed. With the similarity of qualification measure added, the effect of psychological proximity on perceived similarity was reduced to marginal significance in the College scenario and nonsignificance in other three scenarios. As perceived similarity increased, so did perceptions of unfairness, predicting increased negative affect. Both psychological and physical proximity continued to predict future interactions despite the similarity in qualification variable, although the effect size was considerably greater in physical proximity than in psychological proximity. In contrast to findings in prior studies, across all scenarios, future interactions predicted more frequent reminders, which in turn predicted greater negative affect.

Mediational analyses. The same mediational pathways were investigated as in Study 4, the results of which are presented in Table 12. These were also as hypothesized. With manipulated similarity the relationship between unfairness and psychological proximity was reduced to marginal significance in one scenario and nonsignificance in two more. The prediction of affect via similarity was still mediated by unfairness, and the prediction of

reminders by both psychological and physical proximity was still mediated by perceived future interactions, although the effects were greater as a function of physical proximity. Finally, perceived reminders mediated the relationship between future interactions and affect.

Indirect effects were once again examined to determine if either physical or psychological proximity had a greater influence on affect. For the manipulated forms of physical and psychological proximity, the prediction of affect was greater for psychological proximity in the College (for psychological, $\beta = -.08$, for physical, $\beta = -.05$) and Fraternity (for psychological, $\beta = -.06$, for physical, $\beta = -.02$) scenarios, greater for physical proximity in the Work scenario (for psychological, $\beta = -.03$, for physical, $\beta = -.07$), with no large difference in the Job scenario (for psychological, $\beta = -.06$, for physical, $\beta = -.07$). For measured proximity, physical proximity had a stronger influence on affect in the Work (for psychological, $\beta = -.04$, for physical, $\beta = -.08$) and Job (for psychological, $\beta = -.07$, for physical, $\beta = -.10$) scenarios, with no differences in the College (for psychological, $\beta = -.10$, for physical, $\beta = -.10$) and Fraternity (for psychological, $\beta = -.07$, for physical, $\beta = -.07$) scenarios. Thus, there was no consistent evidence that either physical or psychological proximity had a stronger relationship on negative affect. One reason for this is that the similarity in qualification manipulation may have attenuated the indirect influence of psychological proximity on negative affect. Indirect effects of this variable predicting negative affect were quite large, ranging between .30 and .36.

Testing for gender differences. The analyses testing for gender differences are presented in Table 13. Responses did not differ as a function of gender in either the College or Fraternity scenarios. For the Job scenario, structural invariance was not achieved. There were several possible loadings in the structural model where it appeared that males and

females may have differed. The prediction of future interactions by psychological proximity was greater for males (β = .51) than for females (β = .31), and the prediction of future interactions by physical proximity was greater for females (β = .72) than for males (β = .49). This finding that future interactions were more strongly predicted by psychological proximity for males and by physical proximity for females appeared to occur also in the College and Work scenarios, albeit to a lesser extent; however this pattern of results did not occur for any scenario in Study 4.

Neither structural nor measurement invariance were found in the Work scenario. This is somewhat similar to the findings with the Work scenario in Study 4, where structural invariance was not found. In that study, reminders were better predictors of affect for females than for males, and this occurred as well in the current study (for males, β = -.14, for females, β = -.36). However, while unfairness was better predicted by similarity in males versus females in Study 3, results were opposite in the current study (for males, β = .60, for females, β = .91). Also within the structural model, psychological proximity predicted similarity more strongly for males (β = .17) than for females (β = .01), but this pattern did not generalize to other scenarios. In the measurement model, there did not appear to be any loadings that varied widely by gender. There were several variances, however, that appeared to differ considerably, including deservingness (for males, ε = 10.22, for females, ε = 3.20), favoritism (for males, ε = .70, for females, ε = 8.04), and perceived unfairness (for males, ζ = 14.76, for females, ζ = 5.35)[4]. With the exception of favoritism, these variances were all considerably larger in males, which may have resulted from a much smaller sample size of

[4] Traditionally, different notations are used to indicate variances within different parts of a structural equation model. Variances for observed criterion variables are symbolized using epsilon (ε), while variances for latent criterion factors are symbolized using zeta (ζ).

males than females, making estimates for males more susceptible to fluctuation due to extreme observations.

Exploratory Models

A similar series of exploratory models was conducted as in Study 4. Only in the Fraternity scenario did physical proximity predict psychological proximity significantly (β = .17, $p < .001$). Psychological proximity also predicted physical proximity in this scenario (β = .33, $p < .001$). This contrasts with the previous study, in which both of these relationships were significant in three of the four scenarios. Physical proximity was a significant predictor of similarity in the Fraternity scenario (β = .11 p =.01) and a marginally significant predictor in the College scenario (β = .07, p = .08); these effects were not seen in Study 4. Physical proximity also predicted unfairness in the Fraternity scenario (β = -.12, p = .03).

Within-Subjects Analyses

Similar to Study 4, within-subjects differences in social comparison, the evaluation of the IB, and perceived intentional reminders as a function of physical and psychological proximity were analyzed. ANOVA results are presented in Table 14. As with the previous study, social comparisons were more frequent when either psychological proximity (for high, M = 14.76, for neutral, M = 11.75) or physical proximity (for high, M = 13.92, for low, M = 12.59) was manipulated as high. There was also a significant interaction that indicated simply that all four simple main effects differed from one another; none of these were contrary to predictions. Also as in Study 4, perceived intentional reminders were less likely under high (M = 2.52) than low (M = 2.84) psychological proximity, although both were judged to be relatively infrequent. Participants also perceived more frequent intentional reminders when the IB was physically close (M = 2.89) than distant (M = 2.57). Finally,

unlike in the prior study, the evaluation of the IB did not differ significantly based on psychological proximity, although the means corresponded with predictions (for high, M = 15.15, for neutral, M = 14.98). This variable did vary, however, as a function of physical proximity (for high, M = 15.58, for low, M = 14.55). There was also a significant interaction, which indicated that the psychologically close, physically distant condition did not differ from either of the physically close conditions, so that only in the psychologically and physically distant conditions was the IB evaluated more poorly.

Discussion

The results of this study corresponded almost perfectly with those of hypotheses. The influence of psychological proximity on one's perceived similarity with the other dropped to nonsignificant levels across all but one scenario when participants were told explicitly that they were either equally or less qualified than the IB. As in the previous study, the allocation was perceived as more unfair, and perceived unfairness predicted more strongly to negative affect when participants saw themselves as similar to the IB. Psychological proximity was still indicative of future interactions with the IB but, unlike in preceding studies, physical proximity was also a consistent predictor of future interactions and to a much greater extent than was psychological proximity. Additional analyses demonstrated further that social comparisons with others were more likely with higher physical and psychological proximity. Also contrasting with previous studies, participants believed that they were more likely to be reminded of the benefit dispensation when interactions were high. As these perceived reminders increased, so did negative affect.

A prediction that was not supported was that psychological proximity would have a stronger influence on negative affect than would physical proximity. While there was

evidence to this effect in the College and Fraternity scenarios, an opposite effect occurred in the Work and Job scenarios. As already mentioned, the similarity in qualification variable reduced the influence of psychological proximity on negative affect severely, so that psychological proximity impacted affect primarily via perceived future interactions and reminders.

Exploratory modeling uncovered several previously unobserved findings. One of these was that physical proximity predicted similarity in half of the scenarios. Another novel finding was that physical proximity predicted similarity significantly in one scenario and marginally in another, although these effects were not especially strong. Future studies would note if these findings recurred or if they were simply random.

There were several noteworthy gender differences in this study. Generally, future interactions were predicted better by psychological proximity in males and physical proximity in females. Perhaps this indicates that men tend to associate social interactions more with friendship than with mere physical closeness while women do the opposite, or it may indicate that women paid closer attention to the physical proximity manipulation than did men. Regardless of the reason for this difference, there were not any consistent gender differences in terms of how perceived future interactions influenced reminders or unfairness, nor did this effect occur in the previous study, indicating that this gender difference may be random. In the Work scenario, reminders were a stronger predictor of negative affect for females than for males, a finding that occurred as well in the same scenario in Study 4. This may be because of the previously mentioned finding that women engage in more frequent social comparisons than do men, but this gender difference did not replicate in other SEM

models in either Studys 3 or 4, nor were there any significant gender differences in social comparisons in the present study.

Participants once again seemed reluctant to place blame or derogate the IB in response to the dispersal, regardless of proximity. Only when the IB was physically distant and psychologically neutral did participants give this person a more negative evaluation, possibly because this was the only "safe" target for derogation. While we may be reluctant to disparage our friends and we wish to get along with those with whom we expect regular future contact, someone who meets neither of these criteria may provide an easier scapegoat. Participants were also disinclined to believe that the IB would remind them intentionally of the allocation, although they were even more so in psychologically close and physically distant others. While these diametric findings for different forms of proximity may seem odd initially, it seems reasonable to believe that friends would make the "extra effort" not to remind the other, while at the same time it is much less likely that one will be reminded (either intentionally or unintentionally) by someone who is physically distant.

In summary, despite some contradictory findings, in general, the current study provided very strong evidence for the importance of perceiving similarity in another in order for a discrepant allocation between the two to be judged as unfair. Further, the strong belief that proximal others, chiefly emotionally proximal others, are similar to us, was further supported. The hypothesis that future interactions with another are more likely when one perceives either physical or psychological proximity with this person also found support. Also supported was the perception that further interactions with another under these circumstances will lead to reminders that the other has been benefited, and that these reminders will increase one's negative affect.

CHAPTER V

STUDY 6

Just as the previous experiment was designed to validate the importance of similarity by directly manipulating this variable, Study 6 was designed as a more direct means of testing whether future interactions with another lead to greater anticipated reminders of the resource distribution. While we tend to believe that we will interact with those who are physically close to us, this should not occur if one were told that interactions with this person were in fact rare. As in the previous study, physical and psychological proximity remained as independent variables; however, participants were also told that they interacted frequently or infrequently with the IB. Based on the supposition that it is not physical proximity per se that determines one's response to the allocation decision, but rather the extent to which one believes that physical proximity will lead to future interactions and reminders of the inequitable decision, it was also hypothesized that anticipated frequent future interactions would decrease the influence of measured physical proximity on perceived future interactions, perceived reminders, and negative affect. Similarity, however, was expected to continue influencing perceived unfairness, leading to increased negative affect, as it was thought that one does not need to interact with another or be reminded of the decision in order to believe it unjust.

Method

One hundred and eighty-five students (30% male, 68% female, 2% gender not reported) recruited from the UNC-CH participant pool took part in this study. This experiment duplicated the method in Study 5, except that the Present Interactions manipulation replaced the Similarity in Qualification manipulation, resulting in a 2 (Psychological Proximity: Close or Neutral) by 2 (Physical Proximity: Close or Distant) by 2 (Frequency of Present Interactions: Frequent or Infrequent) between-subjects design. A copy of this new manipulation is in Appendix G. In developing this manipulation, the original intent was to manipulate future, rather than present, interactions. It became apparent, however, that a conceivable confound could exist when participants were psychologically close to the IB but were told that future interactions would be infrequent. More specifically, if participants were told that they failed to receive a desired resource that was instead rewarded to a friend, and that they would not be interacting with this person in the future, participants might surmise that they were angry at this person, ignoring them, and so on. Participants would be less likely to make this supposition with a psychologically neutral other. To avoid this potential confound, participants' current interactions with the IB were manipulated, with the hope that they would assume that future interactions would continue with about the same frequency as before. Conditions were presented using the same counterbalancing methodology as in Study 5, with the Future Interaction manipulation being staggered in the same manner as the Similarity in Qualification manipulation in the former study.

Results

Similar analytical procedures were used as those in Study 5 unless noted otherwise.

Measure Reliability

Reliability results are presented in Table 15. Although generally strong, reliability was mediocre for several measures, including perceived similarity in the Work scenario, perceived reminders in the College and Job scenarios, perceived favoritism in the College and Fraternity scenarios, and deservingness in the Job scenarios. Except for the favoritism measures, all of these variables showed strong reliability in Study 3, making this difference across studies seem somewhat odd given that these measures were identical to those used in Study 5. Nevertheless, reliability was generally adequate for all measures.

Manipulation Checks

As predicted, measured psychological proximity was perceived as higher based on manipulated psychological proximity (for high, $M = 11.45$, for neutral, $M = 6.62$), $F\ (184) = 621.04$, $p < .001$, and measured physical proximity also differed as predicted based on manipulated physical proximity (for high, $M = 11.21$, for low, $M = 8.12$), $F\ (184) = 188.03$, $p < .001$. Future interactions due to psychological proximity increased when psychological proximity was manipulated as high ($M = 5.21$) versus neutral ($M = 3.16$), $F\ (184) = 285.62$, $p < .001$, as did future interactions due to physical proximity when physical proximity was manipulated as high ($M = 5.12$) rather than low ($M = 4.11$), $F\ (184) = 55.23$, $p < .001$. Psychologically close participants saw themselves as more similar to the IB ($M = 18.59$) than did psychologically neutral participants ($M = 17.94$), $F\ (184) = 20.93$, $p < .001$. There were no differences in similarity as a function of physical proximity, $F\ (184) = .30$, $p = .58$. Future interactions seemed more likely as a function of both psychological proximity (for high, $M = 14.42$, for neutral, $M = 12.98$), $F\ (184) = 11.90$, $p = .001$, and physical proximity (for high, $M = 15.62$, for low, $M = 11.78$), $F\ (184) = 111.09$, $p < .001$. Reminders were

perceived as more likely based on high physical proximity (for high, $M = 19.12$, for low, $M = 17.71$), $F\ (184) = 15.25$, $p < .001$, but not high psychological proximity (for high, $M = 18.49$, for neutral, $M = 18.34$), $F\ (184) = .18$, $p = .67$.

To analyze the effectiveness of the present interactions manipulation, separate 2 (Psychological Proximity) by 2 (Physical Proximity) by 2 (Manipulated Present Interactions) between-subjects ANOVAS were conducted for each scenario, with perceived future interactions and perceived reminders serving as the dependent variables. Future interactions were anticipated more frequently when present interactions were manipulated as high (for College, $M = 15.22$, for Fraternity, $M = 16.00$, for Work, $M = 18.47$, for Job, $M = 16.05$) rather than low (for College, $M = 10.36$, for Fraternity, $M = 10.38$, for Work, $M = 10.95$, for Job, $M = 12.07$), for College, $F\ (177) = 83.95$, $p < .001$, for Fraternity, $F\ (177) = 79.13$, $p < .001$, for Work, $F\ (177) = 160.39$, $p < .001$, for Job, $F\ (177) = 42.17$, $p < .001$. Perceived reminders were also more likely when manipulated present interactions were high (for College, $M = 20.21$, for Fraternity, $M = 19.48$, for Work, $M = 19.24$, for Job, $M = 19.75$) rather than low (for College, $M = 18.46$, for Fraternity, $M = 16.17$, for Work, $M = 16.27$, for Job, $M = 17.72$), for College, $F\ (177) = 4.41$, $p = .04$, for Fraternity, $F\ (177) = 12.06$, $p = .001$, for Work, $F\ (177) = 10.07$, $p = .002$, for Job, $F\ (177) = 5.64$, $p = .02$. In the job scenario, however, this was qualified by a significant interaction between physical proximity and manipulated present interactions, $F\ (177) = 7.61$, $p = .02$, in which significantly fewer reminders were perceived only when the IB was psychologically neutral and physically distant, thus not when the IB was psychologically close and physically distant. To summarize, other than this slight deviation, the remaining manipulations were successful.

Structural Equation Models

Analyses of hypothesized model. The analyzed model in this study was the same as that in Study 5, except that the similarity in qualification variable was removed and the manipulated present interactions variable was added as a predictor of future interactions. The resulting models can be seen in Figures 15 through 18, the variance estimates in Table 16, and the fit indices in Table 17. Results were generally as hypothesized. The present interactions manipulation predicted perceived future interactions, leading to expectations of more frequent reminders and increased negative affect.

Evidence was mixed for whether the new manipulation reduced the influence of measured physical and psychological proximity. In only the Work scenario was the prediction of future interactions by psychological proximity reduced to nonsignificance. Otherwise, both physical and psychological proximity remained significant predictors of future interactions, once again to a greater extent by physical proximity than by psychological proximity. If one examines the size of these effects in comparison with those in the preceding studies, however, there is some evidence that the prediction was attenuated. The extent to which psychological proximity predicted future interactions (for College, β = .12, for Fraternity, β = .25, for Work, β = .04, for Job, β = .23) was less than the degree to which psychological proximity predicted future interactions in Studies 3, 4, and 5 (for College, $\beta \geq .35$, for Fraternity, $\beta \geq .42$, for Work, $\beta \geq .18$, for Job, $\beta \geq .33$). For physical proximity, in general, future interactions were predicted to a greater extent in the current study (for College, β = .40, for Fraternity, β = .50, for Work, β = .50, for Job, β = .51) than in Studies 3 and 4 (for College, $\beta \leq .28$, for Fraternity, β = -.02, for Work, $\beta \leq .14$, for Job, β = .01), but to a lesser extent than in Study 5 (for College, β = .45, for Fraternity, β = .61, for Work, β = .81, for Job, β = .66).

Surprisingly, psychological proximity was a significant predictor of similarity in only the Fraternity scenario (β = .31, $p < .001$); it was a marginally significant predictor in the College scenario (β = .13, $p = .08$), and a nonsignificant predictor in the Work (β = .12, $p = .11$) and Job (β = .09, $p = .25$) scenarios, although these were still stronger effects than those that occurred in Study 5 (for College, β = .08, for Fraternity, β = .05, for Work, β = .04, for Job, β = .05). It is unclear why this occurred when the relationship between psychological proximity and similarity was so robust in studies 3 and 4. Possibly the nature of the manipulation may have made participants more attuned to how their psychological proximity would affect their future interactions rather than their similarity to the other.

Mediational analyses. The mediational analyses are presented in Table 18. Despite the lackluster prediction of similarity by psychological proximity, the relationship between psychological proximity and unfairness continued to be mediated by perceived similarity, except in the Job scenario. Perceived unfairness continued to be a strong mediator of the prediction of affect by similarity. Future interactions continued to affect the relationship between psychological proximity and reminders. Despite the present interactions manipulation, the size of this mediational effect appeared to decrease between Studies 5 and 6 only in the College (for Study 5, β = .15, for Study 6, β = .04) and Work scenarios (for Study 5, β = .07, for Study 6, β = .02). Future interactions was also a mediator between physical proximity and reminders in all but the Work scenario, with between-study decreases noted in both the College (for Study 5, β = .21, for Study 6, β = .12) and Work scenarios (for Study 5, β = .32, for Study 6, β = .21). As in Study 5, the mediational effects were larger in the prediction of affect by physical proximity rather than psychological proximity. Perceived

reminders continued to mediate significantly the prediction of affect by future interactions in all scenarios.

As in prior studies, there were no consistent indications that one form of proximity had a disproportionate influence on negative affect over another. For the manipulated forms of proximity, indirect effects were greater for psychological proximity in the College (for psychological, β = -.04, for physical, β = -.02) and Fraternity (for psychological, β = -.09, for physical, β = -.01) scenarios, physical proximity in the Job scenario (for psychological, β = -.04, for physical, β = -.07), and no different in the Work scenario (for psychological, β = -.04, for physical, β = -.04). When looking at measured proximity, psychological proximity was a stronger predictor in the Fraternity scenario (for psychological, β = -.13, for physical, β = -.10), a weaker predictor in the Work (for psychological, β = -.05, for physical, β = -.07) and Job (for psychological, β = -.06, for physical, β = -.10) scenarios; no difference was revealed in the College scenario (for psychological, β = -.05, for physical, β = -.05). As already mentioned, a drop in prediction by physical and psychological proximity was expected due to the present interactions manipulation. It was clear that this new manipulation did exert some indirect influence on negative affect, with estimates ranging between .05 and .08; however, this is nowhere near the size of the influence exerted by the similarity manipulation in the previous study.

Testing for gender differences. The results of the tests for gender differences are presented in Table 19. As in prior studies, no significant gender differences were detected in the College and Fraternity scenarios. Measurement invariance was not found in the Work scenario, possibly because deservingness loaded on the perceived unfairness factor more strongly for females (β = .81) than for males (β = .58), but this finding did not generalize to

other scenarios. The variance estimates also appeared to be larger for males than for females for Affect (for males, $\zeta = 12.01$, for males, $\zeta = 6.99$) and Feelings (for males, $\varepsilon = 25.96$, for females, $\varepsilon = 14.10$). Once again, these increased variances for males may have resulted from a smaller sample size in males.

In the Job scenario, there were several differences in both the structural and measurement model. Psychological proximity was a significant predictor of similarity for males ($\beta = .27$) but not for females ($\beta < .01$), while similarity predicted unfairness for females ($\beta = .52$) but not for males. Additionally, both the prediction of future interactions by physical proximity (for males, $\beta = .29$, for females, $\beta = .58$) and the prediction of affect by reminders (for males, $\beta = -.21$, for females, $\beta = -.48$) were greater for females. Finally, the feelings measure loaded more strongly onto affect for females ($\beta = .81$) than for males ($\beta = .59$). None of these differences in the Job scenario generalized consistently to other scenarios.

Although the Work and Job scenarios were the only scenarios where differences in loadings and/or variances were significant (defined as a decrement in model fit when these values were constrained to be equal across gender), there were still several instances where differences between genders appeared to generalize across scenarios and/or across studies. A finding that recurred from preceding studies was that reminders predicted affect better for females than for males. In previous studies, this occurred in the Work scenario. In the current experiment, there were no substantial differences in either the Work or Fraternity scenarios in this experiment. However, larger differences appeared to occur in the College and Job scenarios, suggesting that this effect may occur reliably across studies. Another consistent finding was that similarity predicted unfairness better for females. This occurred

in the Work scenario in Study 4, and in all 4 scenarios in the current study, once again suggesting a reliable between-study effect. An effect from Study 5 that did not generalize was that psychological proximity predicted future interactions better for males. The current study found the opposite, with future interactions predicted generally better for females than for males.

Exploratory models. A recurrent finding in these analyses was that physical proximity was a significant or marginally significant predictor of psychological proximity in all scenarios (for College, $\beta = .08$, $p = .07$, for Fraternity, $\beta = .25$, $p < .001$, for Work, $\beta = .07$, $p = .09$, for Job, $\beta = .15$, $p < .01$). The reverse also occurred, with psychological proximity significantly predicting physical proximity in all scenarios (for College, $\beta = .15$, $p = .03$, for Fraternity, $\beta = .25$, $p < .001$, for Work, $\beta = .29$, $p < .001$, for Job, $\beta = .14$, $p = .01$). Physical proximity was a significant predictor of similarity in only the Work scenario ($\beta = .15$, $p = .05$), but it did not predict unfairness significantly in any of the scenarios.

Within-Subjects and Other Analyses

As before, differences in social comparisons, intentional reminders, and the IB evaluation as a function of physical and psychological proximity were analyzed within-subjects, with the results presented in Table 20. Social comparisons were significantly more frequent when psychological proximity was high (for high, $M = 14.44$, for neutral, $M = 12.20$) and marginally more frequent when physical proximity was high (for high, $M = 13.50$, for low, $M = 13.14$). This was qualified, however, by a marginally significant interaction, in which social comparisons varied as a function of physical proximity when psychological proximity was neutral but not when it was high.

It was predicted that social comparisons would be more frequent when present interactions were manipulated as high versus low. This was analyzed using separate between-subjects ANOVAs for each scenario, with gender, psychological proximity, physical proximity, and manipulated present interactions serving as independent variables. In all scenarios, social comparisons were perceived as more likely when present interactions were frequent (for College, $M = 13.94$, for Fraternity, $M = 13.14$, for Work, $M = 14.53$, for Job, $M = 14.53$) rather than infrequent (for College, $M = 13.75$, for Fraternity, $M = 11.51$, for Work, $M = 14.23$, for Job, $M = 12.05$), although these differences were significant only in the Fraternity, $F(1, 184) = 7.59$, $p = .006$, $\eta^2 = .04$, and Job, $F(1, 184) = 16.93$, $p = .02$, $\eta^2 = .03$, scenarios. None of the interactions were significant, nor were there any significant gender effects.

As in Study 5, participants believed that psychologically neutral (for close, $M = 3.05$, for neutral, $M = 2.59$) and physically proximal (for close, $M = 2.95$, for distant, $M = 2.69$) others were more likely to remind them intentionally of the allocation. Unlike in preceding studies, however, the evaluation of the IB did not vary based on either physical or psychological proximity.

Discussion

The primary purpose of this study was to demonstrate the role that reminders of the unequal dispensation of benefits plays in the influence of both physical and psychological proximity on affect. By including a direct manipulation of the likelihood of future contact with the IB, and therefore opportunities to be reminded of the allocation, it was hoped that the effects of psychological and physical proximity on future interactions would become attenuated. There was some evidence that this occurred. Although participants still

continued to expect more frequent interactions with the IB as a result of physical and psychological proximity, the size of this effect was less than that of previous studies. Additionally, while future interactions continued to mediate the influence of psychological and physical proximity on expected reminders, this was also decreased relative to findings in preceding studies. As in the prior experiments, expected reminders of the allocation were related to increased negative affect. Evidence for the importance of future interactions was also mixed when viewing other analyses. Here, social comparisons continued to be more likely when physical and psychological proximity were high, but there was also evidence that they were more frequent when present interactions were manipulated as high**.**

One unexpected finding was that psychological proximity did not lead consistently to participant expectations of similarity to the IB, although perceived similarity still predicted unfairness, leading to greater negative affect. This is somewhat disconcerting, in that the nonsignificant prediction of similarity by psychological proximity in Study 5 was attributed to the similarity in qualification manipulation, raising the possibility that this decrease in Study 5 was actually artifactual. However, because the sizes of these effects in Study 5 are almost universally smaller than those in Study 4, Study 6, and Study 3, this seems unlikely.

Another unexpected finding was that it remained unclear if psychological proximity or physical proximity more strongly influenced negative affect. For this study, one would have expected the future interactions manipulation to have greatly reduced the indirect effects of physical proximity, and to a lesser extent psychological proximity, on negative affect. However, because psychological proximity still influenced negative affect through perceived similarity, it would seem reasonable to predict that psychological proximity would

clearly “out-predict” negative affect over physical proximity. However, consistent evidence for this was not found.

CHAPTER VI

GENERAL DISCUSSION

In looking at the twelve tests of the hypothesized model across three studies, it appears that the predicted models were generally supported. There was very reliable evidence of the importance of perceiving similarity to the other in order to perceive injustice in the decision to reward this person but not oneself. In all studies, as participants saw themselves as more similar to the IB, there was also a greater feeling of unfairness in the reward distribution, including increased perceptions of favoritism, one's own deservingness of the reward, and a more negative evaluation of the decision. With these increased perceptions of unfairness came increased negative affect, including feelings of anger, negativity, rejection, jealousy, and envy.

There was also strong evidence that these feelings of similarity were tied principally to instances of close psychological proximity, which was demonstrated in several ways. In three-quarters of the analyses in which it was hypothesized, a greater feeling of psychological closeness to the IB predicted a greater feeling of similarity to this person. Further, similarity was a consistent mediator of the influence of psychological proximity on perceived unfairness in all instances where this was hypothesized except one. Finally, when similarity between oneself and the IB was directly manipulated, participants were not necessarily more likely to see themselves as similar to the other simply because psychological proximity was high.

There was far less evidence that mere physical proximity was sufficient to engender feelings of similarity to the other or a belief that the allocation was unfair. This relationship between physical proximity and similarity was observed in only about one-quarter of the analyses in which there was a direct test for this and, in instances where this did occur, the effects were always small. Even less consistent was evidence that physical proximity was somehow related to perceptions of unfairness in the allocation decision.

With the exception of Study 4, there was also consistent evidence that negative affect increased as a result of participants' belief that they would experience future contact with the IB, and that these contacts would remind them of the discrepant allocation, either through the IB's mere presence or through accidental means. These perceived reminders were repeated mediators of the prediction of affect via expected future interactions. Strong support was provided for the hypothesis that future interactions tended to occur during instances of either high psychological or high physical proximity. Additionally, expectations of future interactions mediated participants' beliefs that high psychological and physical proximity would lead to more frequent reminders. When present interactions, and presumably perceived future interactions, were manipulated, the influence of psychological and physical proximity on perceived reminders was decreased but not eliminated. Further, the size of the influence of this present interaction manipulation on negative affect was far smaller than that which occurred when similarity in qualification was manipulated.

It seems, then, that there was consistent evidence that the anticipation of being reminded of the disparate allocation was sufficient to increase negative affect. However, this finding was not quite as strong or reliable as the finding that a perception of unfairness in the dispensation results in increased negative affect. This is not especially surprising, in that

being upset by reminders would seem to be a somewhat simpler response than making an attribution – of unfairness – would be. When we are reminded of a desired benefit that was received by someone else, we do not require a legitimate reason to become upset. It doesn't matter if the reason the other received it was fair or unfair, or if our reasons for negative affect are logical or illogical; we are simply jealous that someone else has something that we want. With unfairness, however, we add an element of righteousness and justification. Now, we have a good reason (or so we think) to be upset. It goes beyond a simple, "I want what s/he has" to "I deserve what s/he has."

One would expect, then, that psychological proximity would have a stronger influence on negative affect than would physical proximity. The perception of unfairness, associated almost exclusively with psychological proximity, seems to be a stronger determinant of affect than would have occurred because of simply being reminded of one's inferior benefit. Further, psychological proximity can increase negative affect by both increasing perceived unfairness and increasing one's reminders, while physical proximity has been shown to influence only perceived reminders. Despite this, there was little consistent evidence that one form of proximity had a stronger effect on negative affect than another, at least within the context of the hypothesized model.

Could one conclude, then, that it really doesn't matter whether the experienced closeness is psychological or physical? Both do lead to distress, and there is no clear evidence that one type of proximity is more distressing than the other. Even if one were to assume this were true, the models examined in the prior studies show repeatedly that physical and psychological proximity follow different paths toward that distress. There are clear paths from perceived similarity to perceived injustice to distress when a psychologically close

other is benefited relative to oneself. Absent psychological proximity, however, perceptions of injustice are not found to mediate distress at viewing benefits to a physically close other. While it is true that close physical proximity is thought to result in perceived similarity (e.g., Festinger et al., 1950), the present results suggest that it cannot always be assumed that the mere physical presence of a benefited other will in fact result in either perceived similarity or perceived injustice.

In a related vein, investigations of the proposed model revealed several similarities and differences in the nature of psychological proximity and physical proximity and how these types of proximity relate to responses to injustice. First of all, there was ample evidence to establish that these concepts are clearly related to one another. The current studies demonstrated that psychological proximity was predicted significantly by physical proximity, indicating that we're likely to see ourselves as friends with those that are close to us, fully corresponding with numerous research findings (e.g., Griffit & Veitch, 1974; Huston & Levinger, 1978; Schoen & Wooldredge, 1989). There was also evidence of the reverse, that psychological proximity was a significant predictor of physical proximity. That we expect to be physically close to our friends has also been supported by prior research (e.g., Marmaros & Sacerdote, 2003). In comparing these two relationships across studies, the expectation of physical proximity with those with whom one was described as also psychologically close was always the stronger of the two, indicating that while we might see ourselves as more likely to befriend proximal others, the reverse (being physically proximal to friends) is more likely.

Although these two concepts are related to one another, they are clearly not the same. As already mentioned, there was convincing evidence that, while we tend to believe that we

are similar to our friends, we do not necessarily expect the same with those who are simply close to us spatially. We can expect to interact with someone, however, when we're either friends with this person or simply physically close to this person, although we're more likely to expect future interactions during instances of physical, rather than psychological, proximity. In the context of the injustice situations mentioned here, we expect that our interactions with this person might provide unintentional reminders of the benefit, regardless of the type of close proximity we have with this person. In terms of whether interactions might lead to intentional, rather than unintentional, reminders of the discrepant allocation, there were some differences based on proximity type. With physical proximity, expectations of intentional reminders were greater when this variable was high rather than low. Participants were less inclined to believe, however, that psychologically close rather than neutral others would purposely remind them of their superior outcomes. This is not at all surprising, as simple physical proximity makes it more likely for reminders - either intentional or unintentional - to occur. However, in relationships involving psychological proximity, things are not as simple, as friendships carry with them expectations of sensitivity to the other's feelings and concern for their well being.

Despite the clear demonstration that we are upset when another gets something that we want, there was little evidence that participants disparaged or blamed the other for this. Again, while both psychological and physical proximity appeared to influence participants' perceptions that the other would purposely remind them of their superior benefit, in no condition was the likelihood of this occurring judged very likely. This suggests that we don't expect others to revel intentionally in their success when in our presence, even when this person is merely a physically-distant acquaintance. Similarly, participants did not see the

other as likely to have obtained their benefit through illicit means or to purposely trumpet their superiority.

In terms of how males and females respond to the rewarding of close or distant others with a desired benefit, differences were largely absent. There were, however, patterns of results within and across studies suggesting possible differences. None of the differences outlined here were especially strong or reliable. Few of them appeared consistently within all scenarios of a single study or consistently across studies. Often, the differences reported here were either contradicted by opposite findings or largely absent in other scenarios or studies. Finally, there were considerably more females in the total sample (72%) than there were males (28%), such that results are less reliable for males. That being said, two potential patterns of gender differences emerged.

One of these was that unfairness was predicted more strongly by similarity for females than for males. This difference was especially prevalent in the Work scenario, in which a supervisor awards a larger bonus to another employee. This may have occurred because women are, or believe themselves to be, more likely than men to experience discrimination in the workplace and elsewhere. As a result, they may believe more strongly that equal people deserve equal treatment, so that when this norm is violated, as was done in these studies, greater unfairness was perceived. Despite this difference, no other consistent gender variations were observed for relationships immediately preceding that of similarity and unfairness. There were no major variations in how psychological proximity predicted similarity, or how the variables of deservingness, the evaluation of the decision, or perceived favoritism loaded onto perceived unfairness, indicating that, despite the greater perception of unfairness resulting from increased similarity, perceived unfairness did not stem appreciably

from greater perceptions of psychological proximity, nor did it influence their reported affect. A second gender difference was that psychological proximity was a stronger predictor of future interactions for males than for females. Perhaps this was an indication that females wished to avoid interacting with their preferentially-benefited friends. If so, there was no evidence that this avoidance would have stemmed from anger towards the other, as both within- and between-subjects analyses did not reveal any significant gender differences in terms of how respondents evaluated the IB. Once again, this variation in the prediction of future interactions did not seem to be related to any other related processes. There were no noticeable divergences in responses based on associated relationships, such as the prediction of reminders by future interactions or perceived physical proximity predicting perceived future interactions. Taken together, these results suggest that, in general, men and women do not differ in their responses to injustice based on either physical or psychological proximity, at least in terms of how these variables were defined and tested here and, when differences did exist, they were often small and inconsistent.

Returning to the model proposed at the outset, it appears that the predictions were generally supported. Participants were almost always upset when another received something that they did not also receive. This upset was even greater, however, when the person receiving this desired commodity was somehow close. One of the reasons for this was that participants saw close others as more similar to themselves. Because of their belief that equal people should be rewarded equally, it was seen as unfair when someone similar and therefore equal to them received a coveted outcome that they did not also receive. As a result of this perceived unfairness, participants reported increased negative affect. This belief that proximal others are similar to oneself seemed to exist almost exclusively during

instances of psychological, but not physical, proximity. Participants in close proximity with the rewarded other also experienced negative affect because of their expectation that proximity would lead to future contact with this other, and that these contacts would remind them of the other's superior benefit. These expectations of future contact with the other occurred when either physical or psychological proximity was present.

The results of these studies seem to support several of the theoretical perspectives mentioned earlier, although there are some notable areas in which they contrast with previous research. Most prominent was that results here distinguished possible differences between psychological and physical closeness. Although few would argue that physical proximity and psychological proximity are identical constructs, prior research (e.g., Tesser, 1988) has often indirectly addressed them as such, while the current research provides strong empirical evidence that they are not. In addition, the negative emotions experienced are not simply the result of more relevant social comparisons with close others.

Limitations and Future Directions

One limitation of the experiments outlined thus far was that all of them were designed to utilize situations in which the allocated resource was non-mutually exclusive, meaning it was possible for both the participant and the IB to receive the desired outcome (e.g., both gaining entrance into college, receiving an equal bonus, and so on), even though it was awarded only to the IB. Results could not show if results would be similar if the resource was exclusive, or could be awarded to only a single individual. To investigate this, a simplified seventh study was also conducted, in which resource exclusivity was manipulated along with psychological and physical proximity. Although a simplified method and results are presented here, a more complete explanation of both can be found in Appendix H.

Several predictions emerged as to how responses would differ based on resource exclusivity. Even though participants were expected to perceive themselves as similar and equally deserving of the dispersal even during instances of high psychological proximity, it was believed that they would also be more accepting of the unfortunate reality that there could be only one "winner" and one "loser" when two equally qualified candidates were competing for a single reward. It was predicted, therefore, that perceptions of unfairness would decrease in the exclusive resource group. However, it was expected that future interactions would still remind participants of the disparate dispensation, regardless of whether there was one or more than one resource available for distribution, so that future interactions, reminders, and their prediction by physical and psychological proximity were not expected to differ as a result of resource exclusivity.

One-hundred and twenty-six UNC-CH students participated in this study for participant pool credit. Because of this relatively small sample size, the results outlined below should be regarded as tentative. This study mimicked the methodology of that in Studies 5 and 6, but with the manipulation of Resource Exclusivity rather than Similarity in Qualification or Present Interactions. The design was thus a 2 (Psychological Proximity: Close or Neutral) by 2 (Physical Proximity: Close or Distant) by 2 (Resource Exclusivity: Exclusive or Non-Exclusive) between-subjects design. Another difference was the elimination of the College scenario, as it seemed implausible to construct a manipulation in which university admission was granted to a single individual.

After successful validation of measure reliability and the effectiveness of the manipulations, several SEM models similar to those in Study 4 were tested. Differences based on exclusivity were tested using similar procedures to those used to test for gender

differences in previous studies. Measurement invariance and structural invariance was obtained in all three scenarios, indicating a lack of response differences based on resource exclusivity. This failure to find differences may have resulted from inadequate power owing to small sample size. A simple examination of the patterns of loadings across scenarios did reveal one noticeable effect. The prediction of similarity by psychological proximity was consistently stronger when the resource was non-exclusive. This may have occurred because the rewarding of an exclusive resource was a mark of distinction, signifying that other rose above all others to receive their benefit, so that the participant did not seem similar to this person after all. When the resource was not exclusive, the allocation of this resource did not make the IB seem different or better; it was seen simply as unfair that additional rewards were available to others and yet were not provided to oneself.

Another potential shortcoming of the studies already conducted was their reliance on mental simulations of hypothetical experiences rather than actual experiences. Future studies should test the predicted models using actual reward allocations in a laboratory setting. For example, studies could involve dyads in which one person is led to believe that the other has been selected to receive a desired reward, such as money. Physical proximity, psychological proximity, future interactions, similarity, and resource exclusivity could all be manipulated, after which participants would complete measures assessing constructs such as their own affect, perceptions of fairness, and evaluation of the rewarded other.

Unfortunately, performing studies of actual interacting participants would seem to be fraught with several challenges. First, it might be difficult to develop a valued reward that participants would desire sufficiently that their failure to receive this reward would trigger negative emotions of great magnitude. Monetary rewards might accomplish this, but

financial constraints would prevent the provision of sizable allocations. It is possible, however, that the hypothesized effects would occur even when the rewards are small. Second, it is unclear whether manipulating either physical or psychological proximity within a laboratory setting could be sufficient to trigger the underlying processes that are hypothesized to influence factors such as affect. For example, simply manipulating physical proximity might have negligible effects upon affect, given that participants would probably anticipate minimal future interactions with the rewarded other after the completion of the experiment. Future interactions could be manipulated (e.g., "After this, you will be working with the other participant for an additional 30 minutes on an unrelated task"); however, such interactions would still be of relatively brief duration. Lastly, it might also be difficult to manipulate psychological proximity under the constraints of laboratory research. It might be possible to request that participants sign up with friends, but it is unclear if such pairs could be recruited in sufficient numbers. Instead, unacquainted participants could engage in a brief activity designed to promote dyadic rapport. This relatively superficial form of psychological proximity might be insufficient to produce feelings of similarity and equal entitlement, although previous research such as that which utilized the minimal group paradigm (Tajfel, 1969), in which groups were formed using completely arbitrary criteria, has managed to generate surprising effects such as ingroup favoritism.

Table 1

Reliability Analyses for Measures in Study 4

	Scenario			
Measure	College	Fraternity	Work	Job
Measured Psychological Proximity	.91	.91	.91	.94
Measured Physical Proximity	.92	.90	.93	.96
Similarity of Self to Other	.80	.80	.77	.77
Anticipated Future Interactions	.84	.83	.84	.82
Perceived Reminders	.66	.72	.74	.70
Decision Evaluation	.93	.93	.93	.93
Feelings Resulting From Decision	.92	.94	.93	.92
Self-Esteem	.92	.90	.91	.91
Normative Endorsement	.86	.85	.85	.80
Belief in a Just World	.84	.83	.82	.82
Perception of Favoritism	.52	.43	.58	.41
Deservingness	.79	.76	.78	.79
Relative Deprivation	.82	.78	.77	.79
Social Comparison	.67	.70	.59	.72
Control	.71	.67	.71	.61

Note. Values represent Cronbach's alpha.

Table 2

Variances Estimates for Hypothesized Model in College, Fraternity, Work, and Job Scenarios in Study 4

	Scenario			
Source	College	Fraternity	Work	Job
Manipulated Psychological Proximity	.25	.25	.25	.25
Measured Psychological Proximity	3.34	3.39	3.64	4.82
Similarity of Self to Other	4.84	6.74	6.05	5.28
Perception of Unfairness	.27	.44	.67	.10
Endorsement of Normative Statements	3.20	4.97	2.76	3.59
Perception of Favoritism	3.92	3.89	3.69	3.29
Belief in a Just World	30.41	29.19	31.99	27.64
Decision Evaluation	11.00	11.91	16.68	13.47
Manipulated Physical Proximity	.25	.25	.25	.25
Measured Physical Proximity	6.43	5.46	5.34	6.37
Perceived Future Interactions	8.82	12.71	13.95	12.90
Perceived Reminders	9.05	6.64	9.21	7.43
Affect	19.97	10.34	14.40	17.01
Feelings Resulting from Decision	3.10	18.85	7.66	10.65
Self-Esteem	77.61	58.45	60.82	62.62

Note. These values correspond to the models presented in Figures 14, 15, 16, and 17.

Table 3

Fit Indices for Hypothesized Model in College, Fraternity, Work, and Job Scenarios in Study 4

Scenario	χ^2	CFI	IFI	RMSEA	90% CI_{lower}	90% CI_{upper}
College	184.69	.88	.89	.08	.07	.10
Fraternity	182.37	.84	.85	.08	.07	.10
Work	148.71	.91	.91	.07	.06	.09
Job	201.38	.84	.84	.09	.08	.10

Note. $df = 63$, $N = 272$, CFI = comparative fit index, IFI = incremental fit index, RMSEA = root mean square error of approximation, 90% CI_{lower} = lower bound 90% confidence interval for RMSEA, 90% CI_{upper} upper bound 90% confidence interval for RMSEA. All χ^2 values are significant, $p < .001$.

Table 4

Variances Estimates for Modified Model in College, Fraternity, Work, and Job Scenarios in Study 4

	Scenario			
Source	College	Fraternity	Work	Job
Manipulated Psychological Proximity	.25	.25	.25	.25
Measured Psychological Proximity	3.74	3.64	3.39	4.82
Similarity of Self to Other	4.84	6.05	6.74	5.28
Perception of Unfairness	3.16	4.14	3.23	3.53
Deservingness	3.73	3.81	4.57	5.20
Perception of Favoritism	3.87	2.76	3.26	2.96
Decision Evaluation	14.69	20.46	22.64	19.67
Manipulated Physical Proximity	.25	.25	.25	.25
Measured Physical Proximity	6.43	5.34	5.46	6.37
Perceived Future Interactions	8.82	13.95	12.71	12.90
Perceived Reminders	22.55	19.98	14.50	16.03
Affect	8.05	11.18	6.23	15.21
Feelings Resulting from Decision	13.74	15.40	24.81	12.46
Relative Deprivation	1.87	2.01	2.78	2.09

Note. These values correspond to the models presented in Figures 18, 19, 20, and 21.

Table 5

Fit Indices for Modified Model in College, Fraternity, Work, and Job Scenarios in Study 4

Scenario	χ^2	CFI	IFI	RMSEA	90% CI_{lower}	90% CI_{upper}
College	148.54	.92	.92	.08	.07	.10
Fraternity	179.18	.86	.87	.10	.08	.11
Work	142.88	.92	.92	.08	.07	.10
Job	188.35	.87	.87	.10	.08	.11

Note. $df = 52$, $N = 272$, CFI = comparative fit index, IFI = incremental fit index, RMSEA = root mean square error of approximation, 90% CI_{lower} = lower bound 90% confidence interval for RMSEA, 90% CI_{upper} upper bound 90% confidence interval for RMSEA. All χ^2 values are significant, $p < .001$.

Table 6

Mediational Analysis Results in Study 4

	Scenario							
	College		Fraternity		Work		Job	
Mediational Pathway	β	*p*	β	*p*	β	*p*	β	*p*
1.	.15	.001	.15	.001	.03	.32	.11	.01
2.	-.44	.002	-.36	.001	-.37	.002	-.32	.002
3.	.20	.003	-.23	.001	-.23	.002	-.19	.002
4.	.07	.002	<.01	.98	.04	.17	<.01	.94
5.	-.11	.002	.31	.001	.10	.002	.19	.003

Note. Mediational Pathway 1 = Similarity mediating prediction of Perceived Unfairness by Psychological Proximity. Mediational Pathway 2 = Perceived Unfairness mediating prediction of Affect by Similarity. 3 = Future Interactions mediating prediction of Reminders by Psychological Proximity. 4 = Future Interactions mediating prediction of Reminders by Physical Proximity. 5 = Reminders mediating prediction of Affect by Future Interactions. Beta-weights represent standardized indirect effects of the mediating variable.

Table 7

Analyses for Measurement and Structural Invariance as a Function of Gender in Study 4

Model	χ^2	*df*	χ^2_{diff}	df_{diff}	*p*	CFI	RMSEA
	College Scenario						
Baseline	189.32	104				.92	.07
Measurement Invariance	199.43	113	10.11	9	.34	.92	.06
Structural Invariance	211.08	130	11.65	17	.82	.92	.06
	Fraternity Scenario						
Baseline	206.98	104				.87	.07
Measurement Invariance	214.80	113	7.82	9	.55	.87	.07
Structural Invariance	228.12	130	13.32	17	.71	.87	.06
	Work Scenario						
Baseline	203.78	104				.90	.07
Measurement Invariance	218.20	113	14.42	9	.11	.89	.07
Structural Invariance	244.18	130	25.98	17	.07	.89	.07
	Job Scenario						
Baseline	208.61	104				.88	.07
Measurement Invariance	218.20	113	8.09	9	.53	.88	.07
Structural Invariance	238.08	130	21.38	17	.21	.88	.07

Note. CFI = comparative fit index, RMSEA = root mean square error of approximation.

Table 8

Analysis of Variance Results in Study 4 for Secondary Dependent Measures

Source	df	*F*	η^2	*p*
		Social Comparisons		
Psychological Proximity	1	66.62	.27	<.001
Physical Proximity	1	5.28	.03	.02
Psychological Proximity x Physical Proximity	1	1.07	<.01	.30
Error	179			
		Feelings of Control		
Psychological Proximity	1	.03	<.01	.86
Physical Proximity	1	1.88	.01	.17
Psychological Proximity x Physical Proximity	1	.81	<.01	.37
Error	179			
		Intentional Reminders		
Psychological Proximity	1	25.31	.12	<.001
Physical Proximity	1	<.01	<.01	.95
Psychological Proximity x Physical Proximity	1	.60	<.01	.44
Error	179			
		Evaluation of IB		
Psychological Proximity	1	17.39	.09	<.001
Physical Proximity	1	.69	<.01	.41
Psychological Proximity x Physical Proximity	1	.10	<.01	.75
Error	179			

Note. IB = injustice beneficiary, Social Comparison = frequency of perceived social comparisons with IB, Intentional Reminders = perception that IB will intentionally remind self of resource allocation

Table 9

Reliability Analyses for Measures in Study 5

	Scenario			
Measure	College	Fraternity	Work	Job
Measured Psychological Proximity	.92	.90	.90	.92
Measured Physical Proximity	.88	.86	.92	.95
Similarity of Self to Other	.93	.92	.89	.93
Anticipated Future Interactions	.92	.91	.93	.91
Perceived Reminders	.72	.76	.74	.71
Decision Evaluation	.94	.94	.95	.96
Feelings Resulting From Decision	.87	.89	.89	.92
Perception of Favoritism	.85	.83	.82	.85
Deservingness	.94	.91	.93	.90
Relative Deprivation	.81	.72	.74	.77
Social Comparison	.78	.81	.83	.78

Note. Values represent Cronbach's alpha.

Table 10

Variances Estimates for Hypothesized Model in College, Fraternity, Work, and Job Scenarios in Study 5

	Scenario			
Source	College	Fraternity	Work	
Job				
Manipulated Psychological Proximity	.25	.25	.25	.25
Measured Psychological Proximity	4.53	3.30	3.82	4.45
Similarity in Qualification	.25	.25	.25	.25
Similarity of Self to Other	11.48	10.00	11.09	7.94
Perception of Unfairness	8.65	9.41	10.61	9.18
Deservingness	5.10	6.48	7.08	5.17
Perception of Favoritism	13.41	5.64	6.80	10.84
Decision Evaluation	24.26	23.78	16.85	20.83
Manipulated Physical Proximity	.25	.25	.25	.25
Measured Physical Proximity	5.18	5.07	6.06	5.30
Perceived Future Interactions	20.76	10.47	6.38	11.16
Perceived Reminders	32.06	32.54	34.35	31.92
Affect	13.90	29.60	17.95	17.38
Feelings Resulting from Decision	22.76	14.04	15.06	24.20
Relative Deprivation	3.77	4.23	3.51	2.89

Note. These values correspond to the models presented in Figures 11, 12, 13, and 14.

Table 11

Fit Indices for Hypothesized Model in College, Fraternity, Work, and Job Scenarios in Study 5

Scenario	χ^2	CFI	IFI	RMSEA	90% CI_{lower}	90% CI_{upper}
College	214.48	.89	.89	.11	.10	.13
Fraternity	189.14	.91	.91	.10	.09	.12
Work	166.38	.94	.92	.09	.08	.11
Job	173.10	.93	.93	.10	.08	.11

Note. $df = 63$, $N = 189$, CFI = comparative fit index, IFI = incremental fit index, RMSEA = root mean square error of approximation, 90% CI_{lower} = lower bound 90% confidence interval for RMSEA, 90% CI_{upper} upper bound 90% confidence interval for RMSEA. All χ^2 values are significant, $p < .001$.

Table 12

Mediational Analysis Results in Study 5

	Scenario							
	College		Fraternity		Work		Job	
Mediational Pathway	β	*p*	β	*p*	β	*p*	β	*p*
1.	.05	.001	.03	.24	.03	.24	.03	.06
2.	-.36	.002	-.39	.002	-.43	.001	-.40	.002
3.	.15	.002	.10	.002	.07	.002	.10	.001
4.	.21	.003	.15	.002	.32	.003	.20	.001
5.	-.20	.001	-.12	.001	-.10	.001	-.16	.001

Note. Mediational Pathway 1 = Similarity mediating prediction of Perceived Unfairness by Psychological Proximity. Mediational Pathway 2 = Perceived Unfairness mediating prediction of Affect by Similarity. 3 = Future Interactions mediating prediction of Reminders by Psychological Proximity. 4 = Future Interactions mediating prediction of Reminders by Physical Proximity. 5 = Reminders mediating prediction of Affect by Future Interactions. Beta-weights represent standardized indirect effects of the mediating variable.

Table 13

Analyses for Measurement and Structural Invariance as a Function of Gender in Study 5

Model	χ^2	*df*	χ^2_{diff}	df_{diff}	*p*	CFI	RMSEA
	College Scenario						
Baseline	282.69	126				.88	.08
Measurement Invariance	290.94	135	8.25	9	.51	.88	.08
Structural Invariance	307.55	154	16.61	19	.62	.88	.07
	Fraternity Scenario						
Baseline	252.89	126				.91	.08
Measurement Invariance	265.35	135	12.46	9	.19	.91	.07
Structural Invariance	284.90	154	19.55	19	.42	.91	.07
	Work Scenario						
Baseline	243.19	126				.93	.07
Measurement Invariance	269.35	135	26.16	9	<.01	.92	.07
Structural Invariance	304.60	154	35.25	19	.01	.91	.07
	Job Scenario						
Baseline	243.30	126				.93	.07
Measurement Invariance	246.64	135	3.34	9	.95	.93	.07
Structural Invariance	297.97	154	51.33	19	<.01	.91	.07

Note. CFI = comparative fit index, RMSEA = root mean square error of approximation.

Table 14

Analysis of Variance Results in Study 5 for Secondary Dependent Measures

Source	df	*F*	η^2	*p*
		Social Comparisons		
Psychological Proximity	1	121.26	.39	<.001
Physical Proximity	1	35.17	.16	<.001
Psychological Proximity x Physical Proximity	1	14.74	.07	<.001
Error	187			
		Intentional Reminders		
Psychological Proximity	1	8.70	.05	.004
Physical Proximity	1	19.66	.10	<.001
Psychological Proximity x Physical Proximity	1	1.12	<.01	.29
Error	187			
		Evaluation of IB		
Psychological Proximity	1	.30	<.01	.59
Physical Proximity	1	20.78	.10	<.001
Psychological Proximity x Physical Proximity	1	6.69	.04	.01
Error	187			

Note. IB = injustice beneficiary, Social Comparison = frequency of perceived social comparisons

with IB. Intentional Reminders = perception that IB will intentionally remind self of resource allocation. Originally analyzed with gender as additional independent variable, no significant differences were obtained.

Table 15

Reliability Analyses for Measures in Study 6

	Scenario			
Measure	College	Fraternity	Work	Job
Measured Psychological Proximity	.92	.89	.88	.89
Measured Physical Proximity	.88	.89	.85	.93
Similarity of Self to Other	.79	.84	.64	.75
Anticipated Future Interactions	.88	.93	.95	.93
Perceived Reminders	.70	.79	.77	.71
Decision Evaluation	.87	.92	.91	.91
Feelings Resulting From Decision	.89	.92	.91	.90
Perception of Favoritism	.70	.60	.72	.79
Deservingness	.79	.85	.78	.71
Relative Deprivation	.81	.81	.78	.79
Social Comparison	.79	.75	.75	.76

Note. Values represent Cronbach's alpha.

Table 16

Variances Estimates for Hypothesized Model in College, Fraternity, Work, and Job Scenarios in Study 6

	Scenario			
Source	College	Fraternity	Work	Job
Manipulated Psychological Proximity	.25	.25	.25	.25
Measured Psychological Proximity	4.69	6.23	3.56	5.66
Similarity of Self to Other	5.88	9.26	5.77	6.51
Perception of Unfairness	4.45	7.52	5.06	3.92
Deservingness	5.06	6.33	5.38	6.15
Perception of Favoritism	9.34	8.71	5.90	8.97
Decision Evaluation	33.44	19.41	13.61	11.01
Manipulated Physical Proximity	.25	.25	.25	.25
Measured Physical Proximity	6.77	7.29	8.56	5.76
Manipulated Present Interactions	.25	.25	.25	.25
Perceived Future Interactions	15.92	11.27	14.08	15.54
Perceived Reminders	32.37	33.96	36.49	27.82
Affect	18.16	13.86	10.07	20.64
Feelings Resulting from Decision	8.78	18.09	18.25	23.92
Relative Deprivation	3.20	3.67	3.14	3.13

Note. These values correspond to the models presented in Figures 15, 16, 17, and 18.

Table 17

Fit Indices for Hypothesized Model in College, Fraternity, Work, and Job Scenarios in Study 6

Scenario	χ^2	CFI	IFI	RMSEA	90% CI_{lower}	90% CI_{upper}
College	160.65	.87	.87	.09	.07	.11
Fraternity	147.77	.90	.90	.09	.07	.10
Work	194.54	.88	.88	.11	.09	.12
Job	139.69	.91	.91	.08	.06	.10

Note. $df = 63$, $N = 185$, CFI = comparative fit index, IFI = incremental fit index, RMSEA = root mean square error of approximation, 90% CI_{lower} = lower bound 90% confidence interval for RMSEA, 90% CI_{upper} upper bound 90% confidence interval for RMSEA. All χ^2 values are significant, $p < .001$.

Table 18

Mediational Analysis Results in Study 6

	Scenario							
	College		Fraternity		Work		Job	
Mediational Pathway	β	*p*	β	*p*	β	*p*	β	*p*
1.	.07	.07	.14	.001	.05	.04	.03	.22
2.	-.32	.002	-.27	.002	-.34	.002	-.17	.002
3.	.04	.02	.10	.001	.02	.40	.11	.001
4.	.12	.001	.21	.001	.21	.001	.24	.001
5.	-.11	.001	-.20	.002	-.13	.001	-.19	.001

Note. Mediational Pathway 1 = Similarity mediating prediction of Perceived Unfairness by Psychological Proximity. Mediational Pathway 2 = Perceived Unfairness mediating prediction of Affect by Similarity. 3 = Future Interactions mediating prediction of Reminders by Psychological Proximity. 4 = Future Interactions mediating prediction of Reminders by Physical Proximity. 5 = Reminders mediating prediction of Affect by Future Interactions. Beta-weights represent standardized indirect effects of the mediating variable.

Table 19

Analyses for Measurement and Structural Invariance as a Function of Gender in Study 6

Model	χ^2	*df*	χ^2_{diff}	df_{diff}	*p*	CFI	RMSEA
	College Scenario						
Baseline	255.83	126				.83	.08
Measurement Invariance	261.92	135	6.09	9	.73	.83	.07
Structural Invariance	283.95	154	22.03	19	.28	.83	.07
	Fraternity Scenario						
Baseline	232.66	126				.87	.07
Measurement Invariance	246.70	135	14.04	9	.12	.86	.07
Structural Invariance	271.62	154	24.92	19	.16	.86	.07
	Work Scenario						
Baseline	273.84	126				.87	.08
Measurement Invariance	302.04	135	28.20	9	<.01	.85	.08
Structural Invariance	322.04	154	20.00	19	.40	.85	.08
	Job Scenario						
Baseline	197.76	126				.92	.05
Measurement Invariance	228.64	135	30.88	9	<.01	.87	.06
Structural Invariance	268.84	154	40.20	19	<.01	.87	.07

Note. CFI = comparative fit index, RMSEA = root mean square error of approximation.

Table 20

Analysis of Variance Results in Study 6 for Secondary Dependent Measures

Source	df	*F*	η^2	*p*
		Social Comparisons		
Psychological Proximity	1	75.06	.29	<.001
Physical Proximity	1	2.74	.02	.10
Psychological Proximity x Physical Proximity	1	2.96	.02	.09
Error	184			
		Intentional Reminders		
Psychological Proximity	1	12.03	.06	.001
Physical Proximity	1	3.76	.02	.05
Psychological Proximity x Physical Proximity	1	.77	<.01	.38
Error	184			
		Evaluation of IB		
Psychological Proximity	1	.10	<.01	.75
Physical Proximity	1	1.24	<.01	.27
Psychological Proximity x Physical Proximity	1	.22	<.01	.64
Error	184			

Note. IB = injustice beneficiary, Social Comparison = frequency of perceived social comparisons

with IB. Intentional Reminders = perception that IB will intentionally remind self of resource allocation. Originally analyzed with gender as additional independent variable, no significant differences were obtained.

Figure 1. Hypothesized Model tested in Study 3.

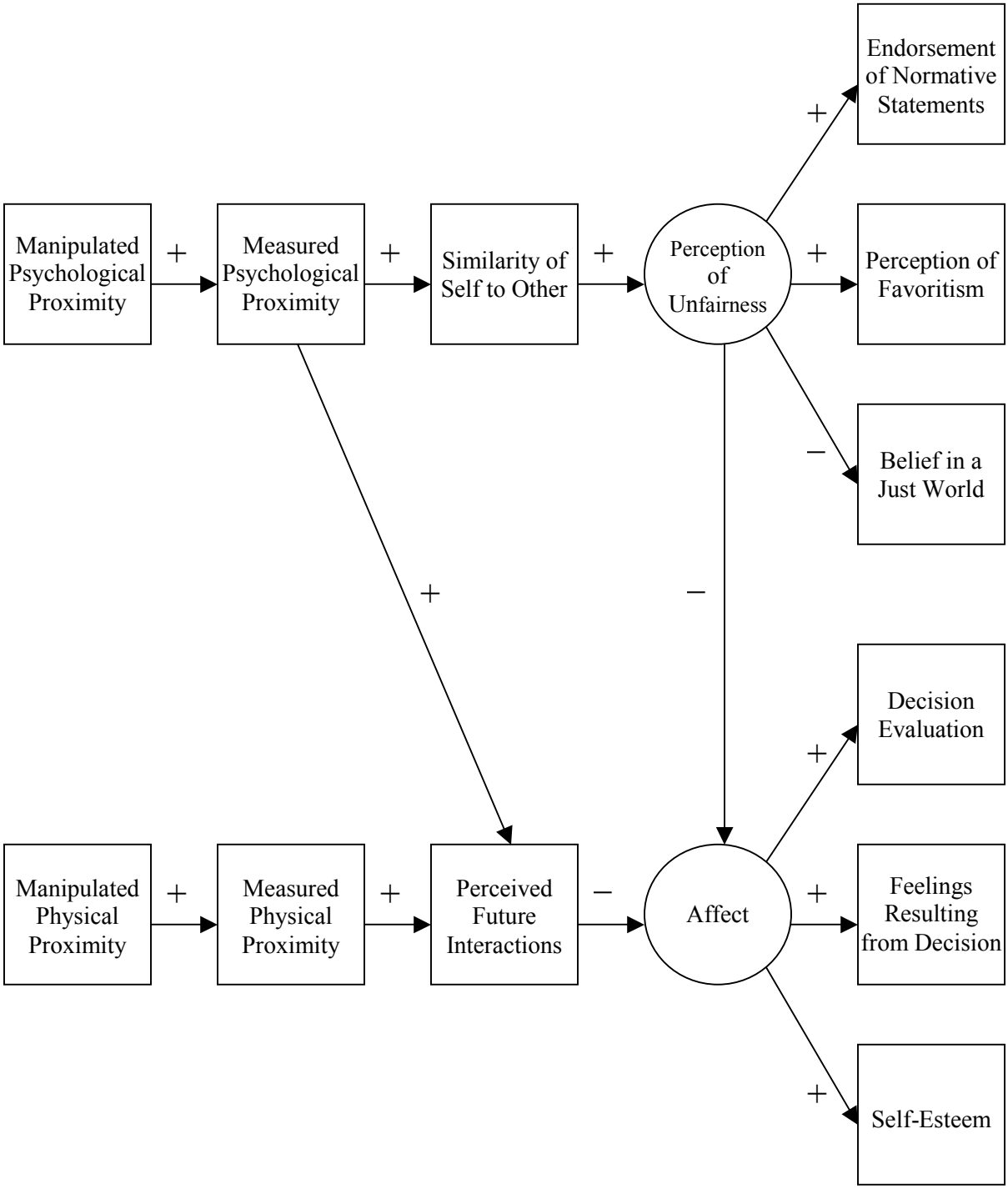


Figure 2. Hypothesized Model tested in Study 4.

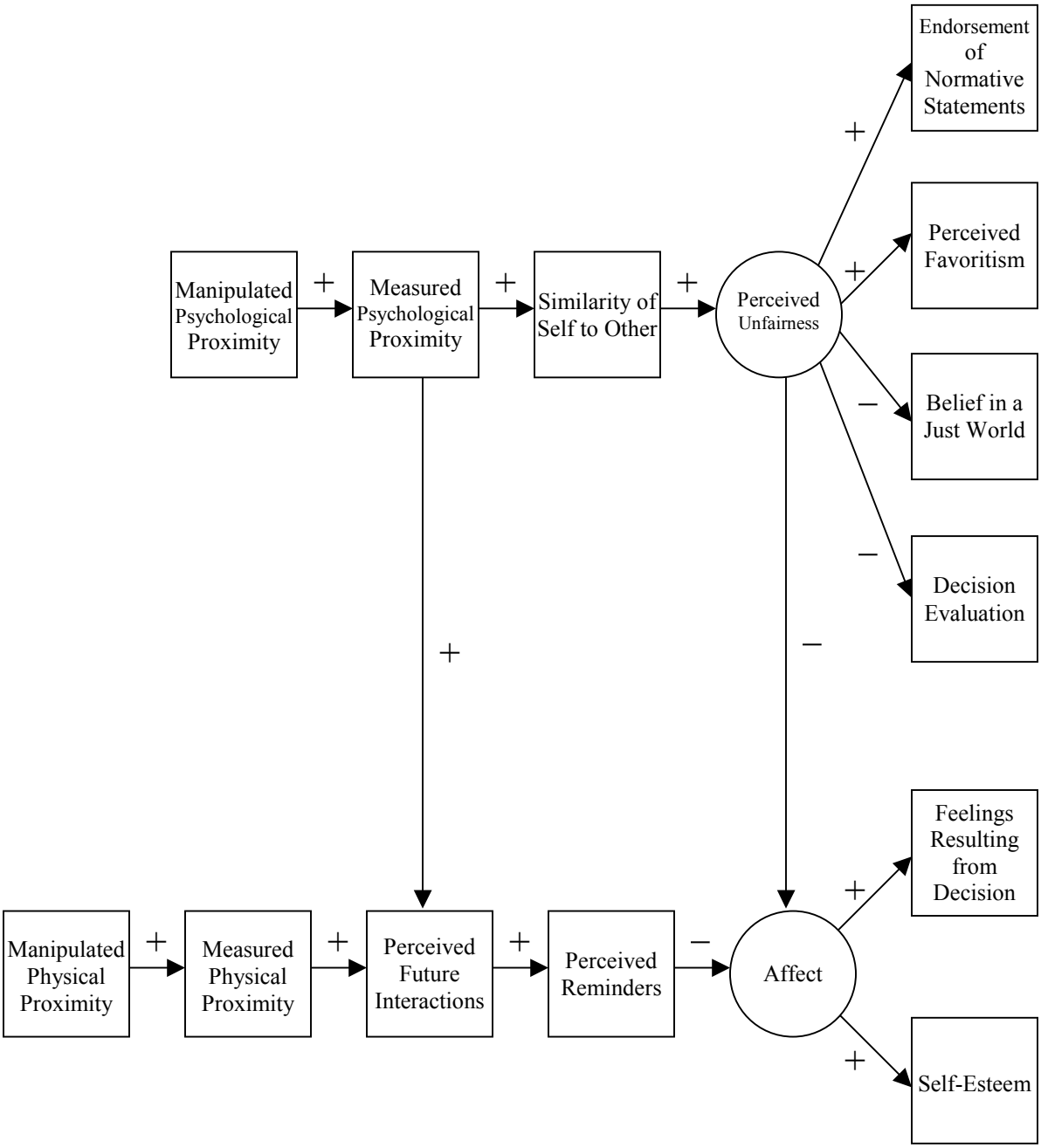
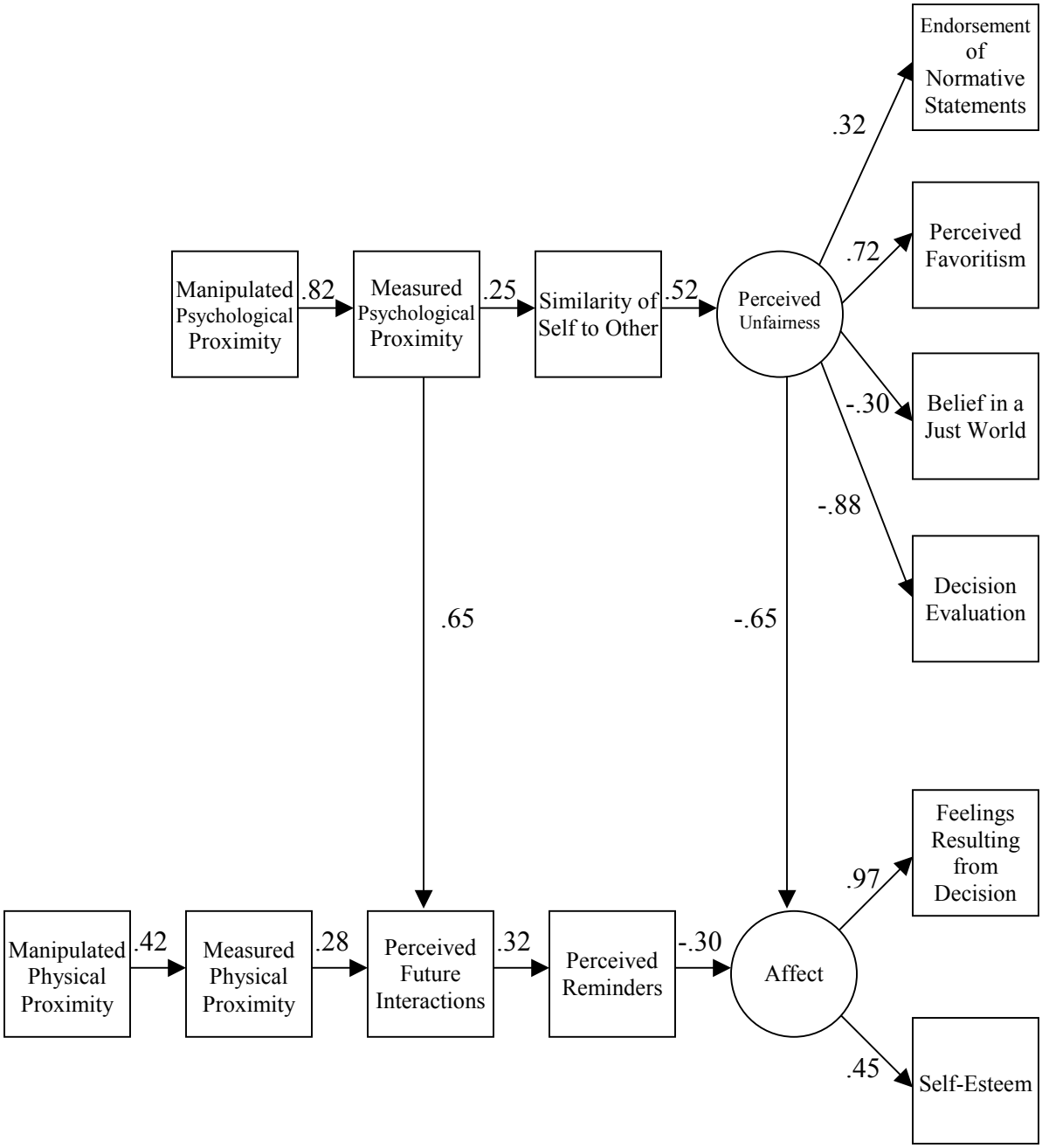
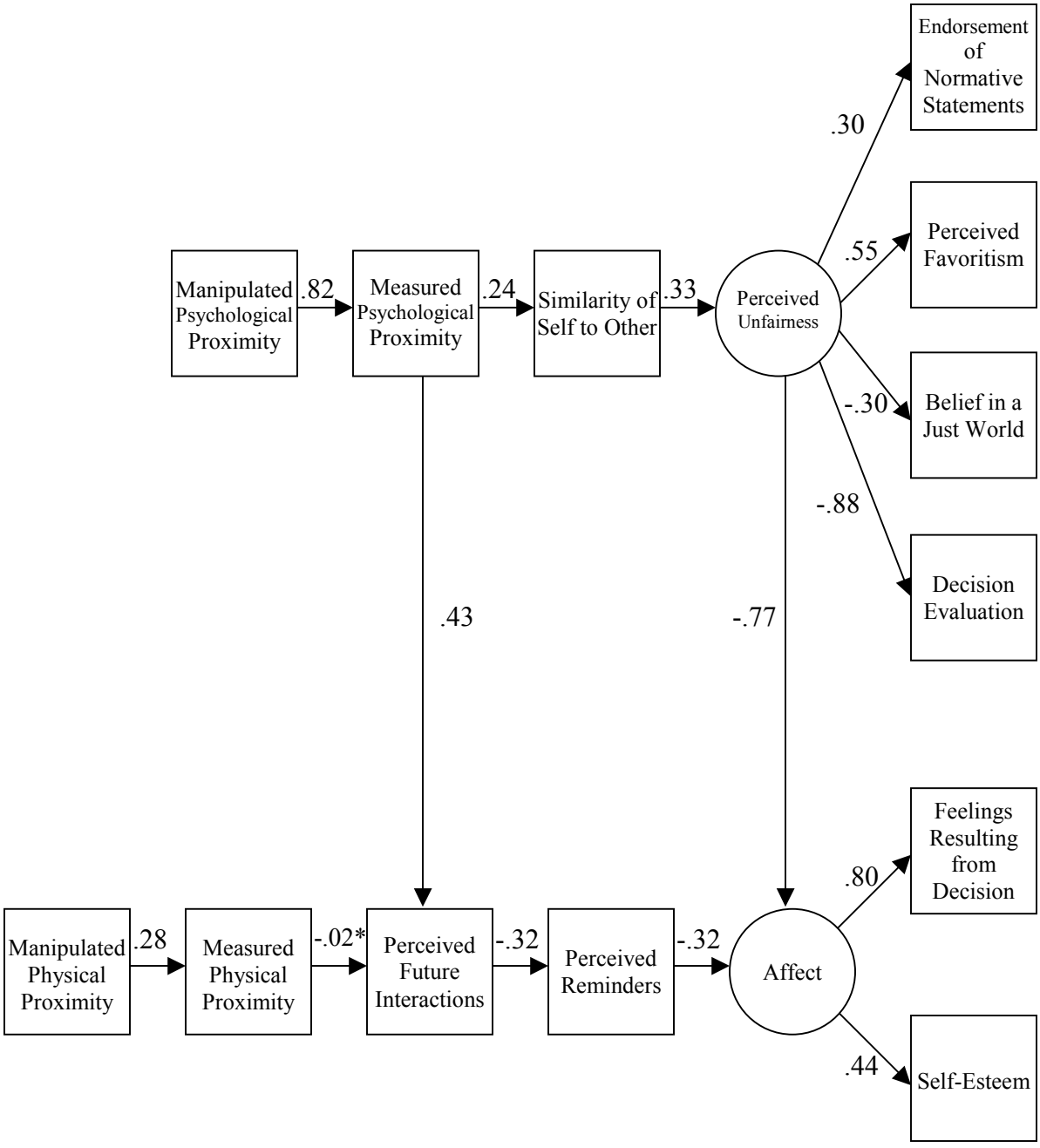


Figure 3. Results of SEM Analysis for Hypothesized Model in College Scenario in Study 4.



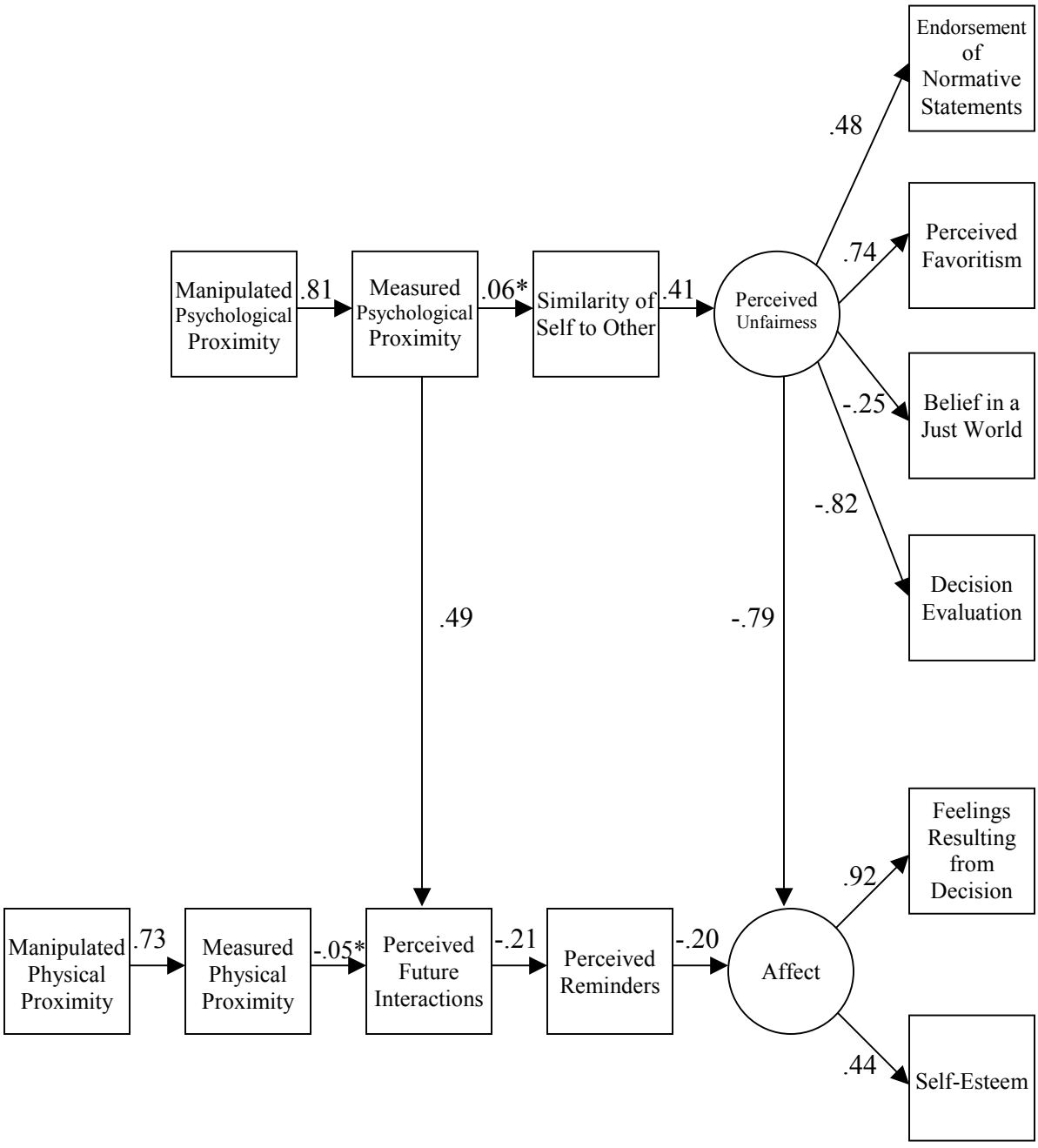
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.

Figure 4. Results of SEM Analysis for Hypothesized Model in Fraternity Scenario in Study 4.



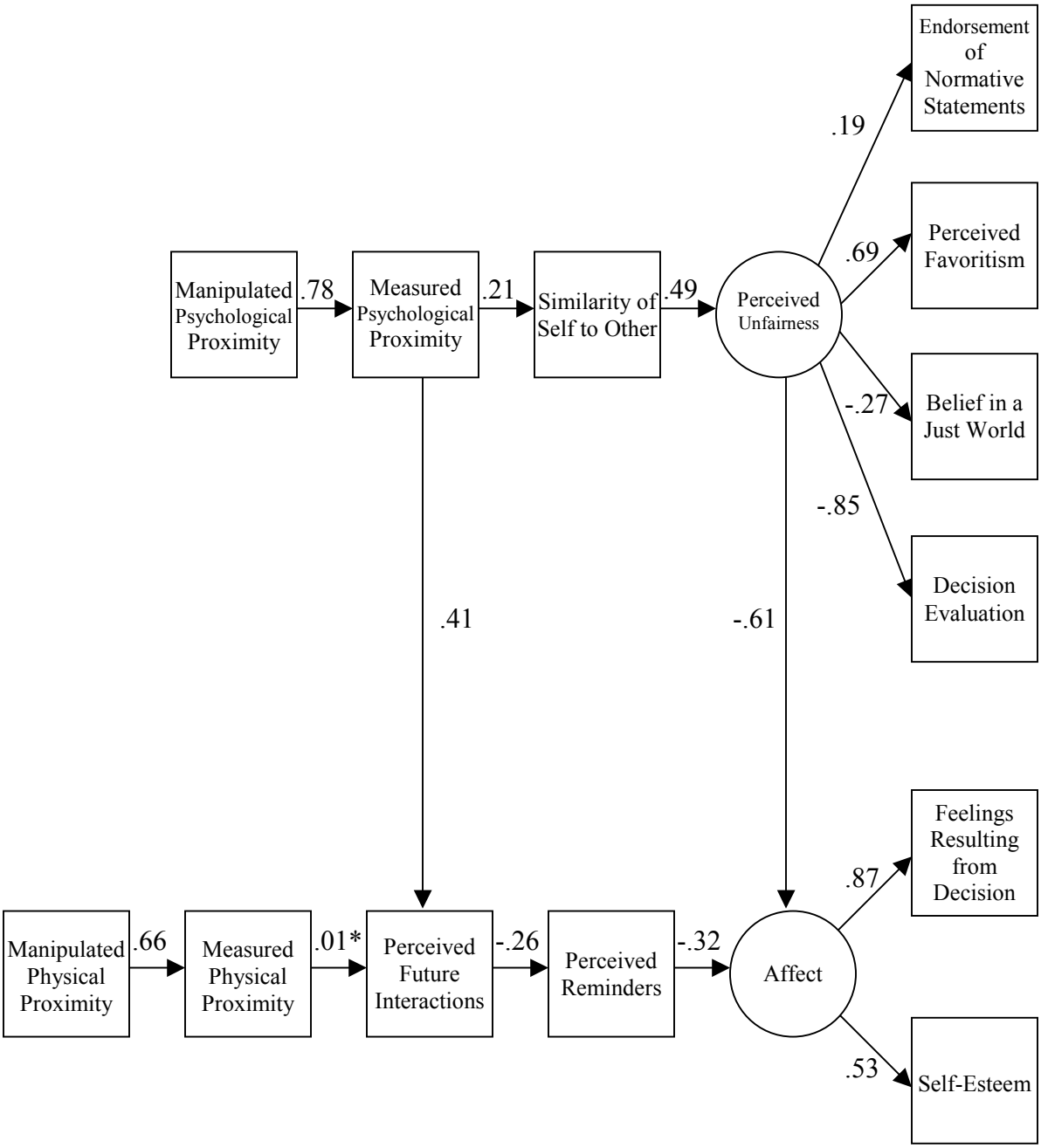
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p > .05$

Figure 5. Results of SEM Analysis for Hypothesized Model in Work Scenario in Study 4.



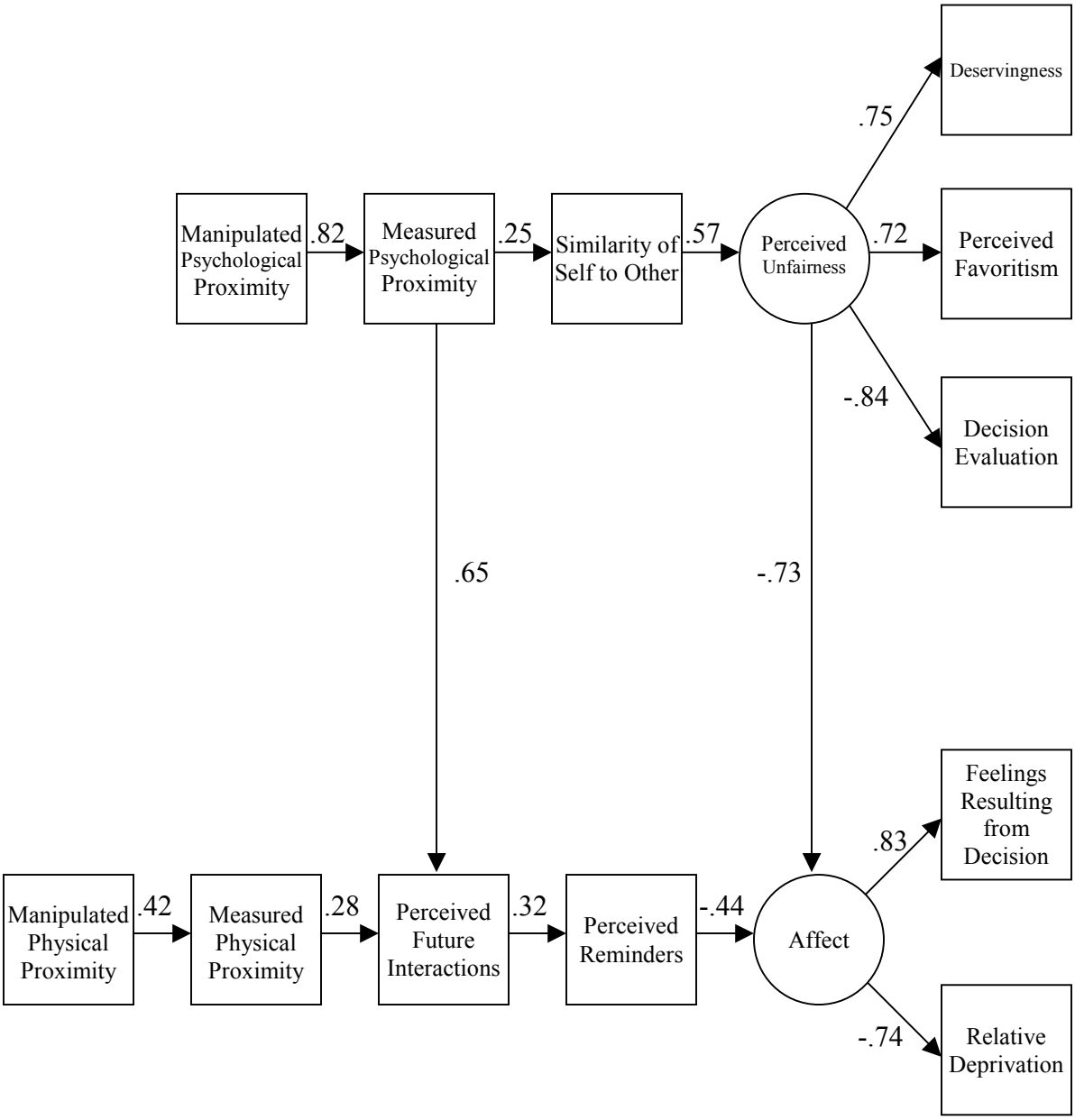
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
*$p > .05$

Figure 6. Results of SEM Analysis for Hypothesized Model in Job Scenario in Study 4.



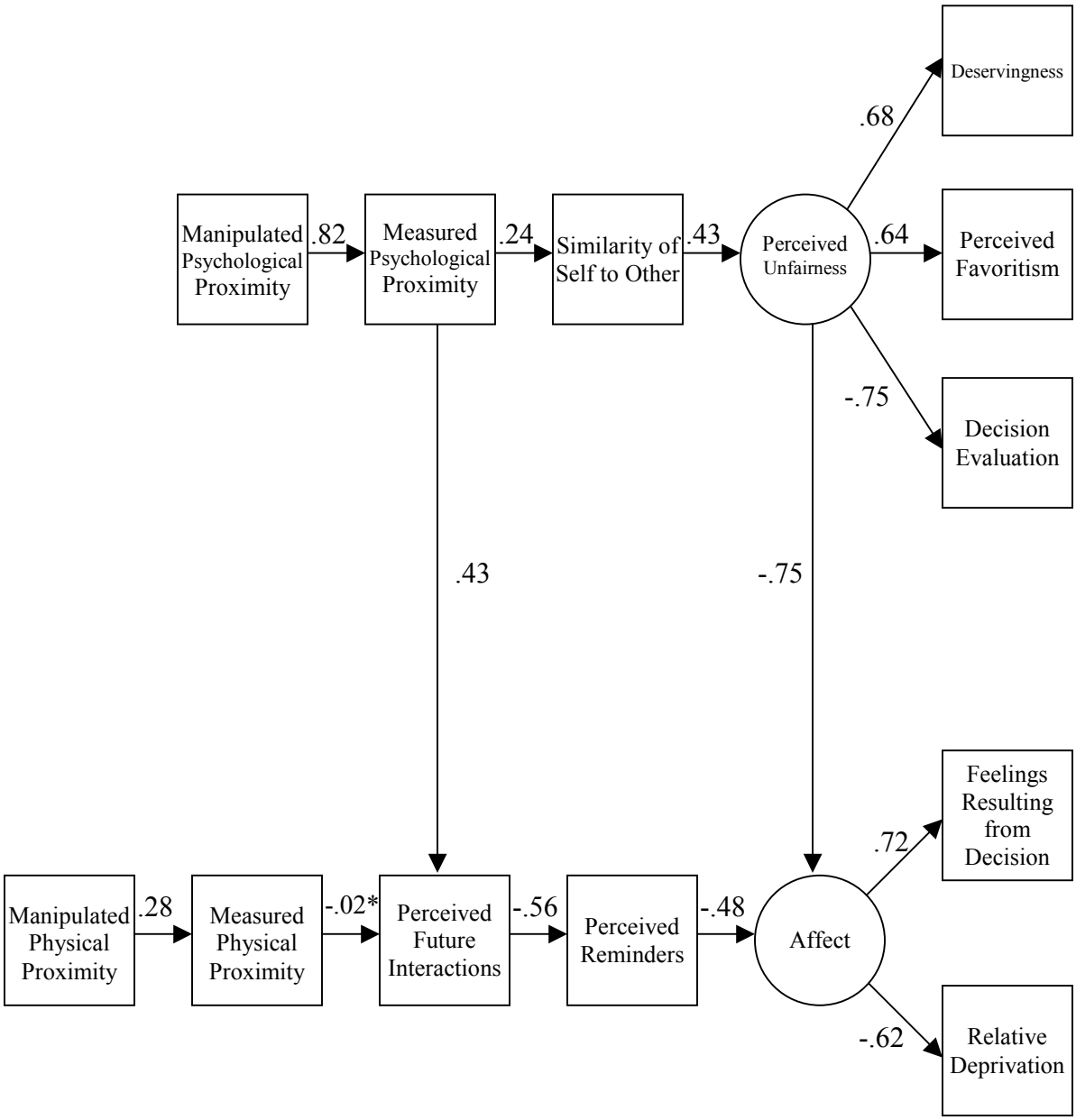
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
*$p > .05$

Figure 7. Results of SEM Analysis for Modified Model in College Scenario in Study 4.



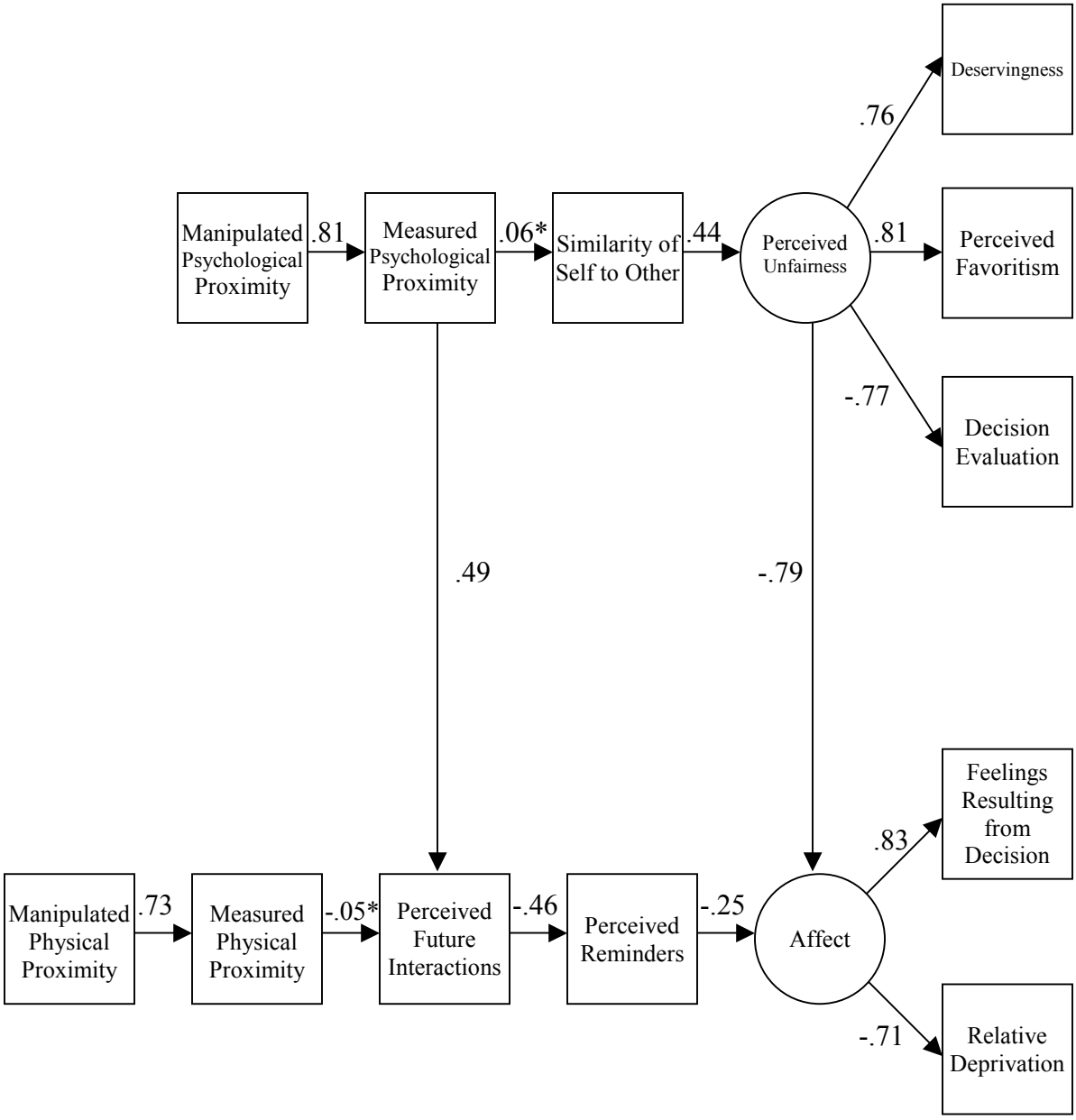
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.

Figure 8. Results of SEM Analysis for Modified Model in Fraternity Scenario in Study 4.



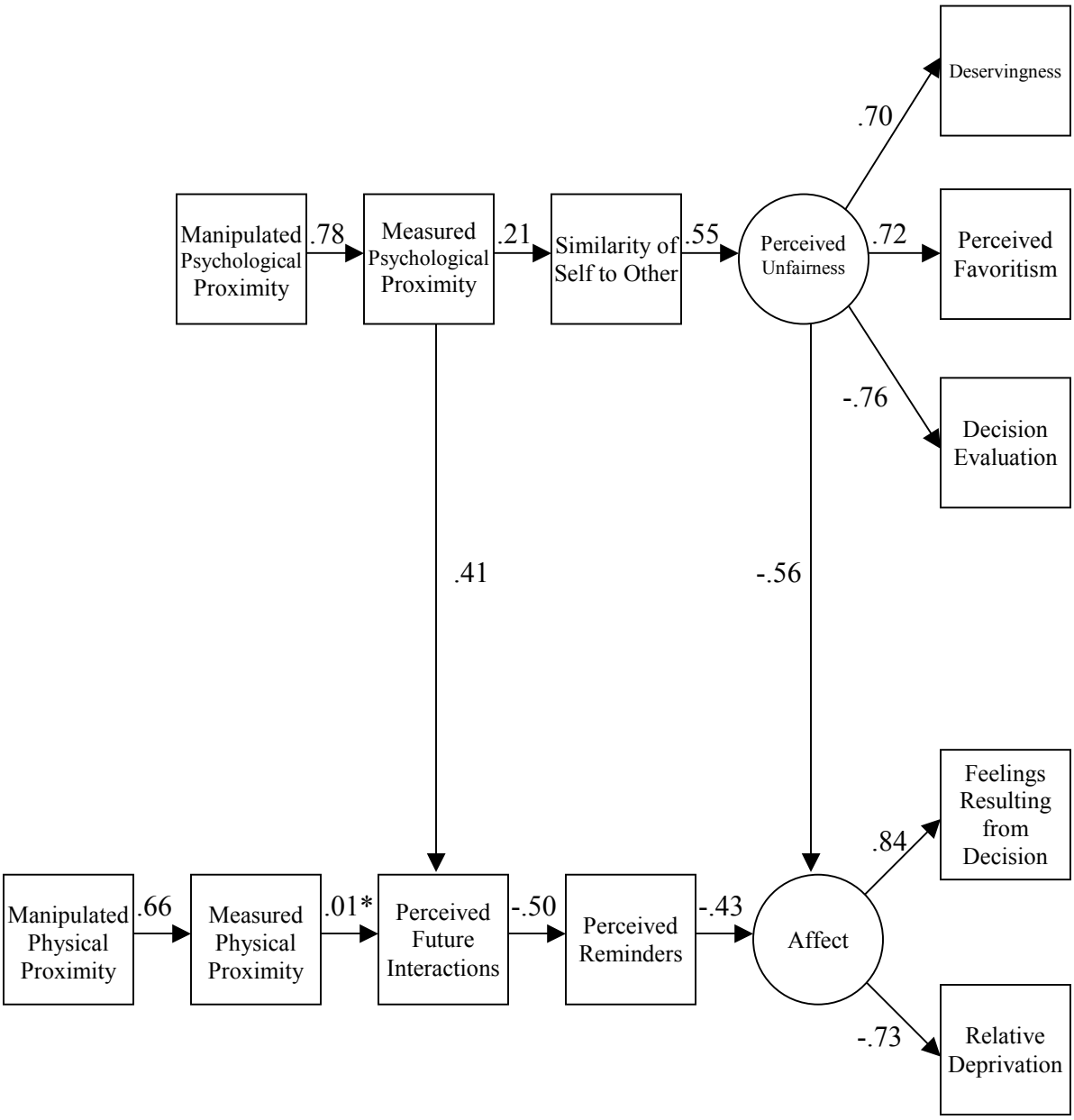
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p > .05$

Figure 9. Results of SEM Analysis for Modified Model in Work Scenario in Study 4.



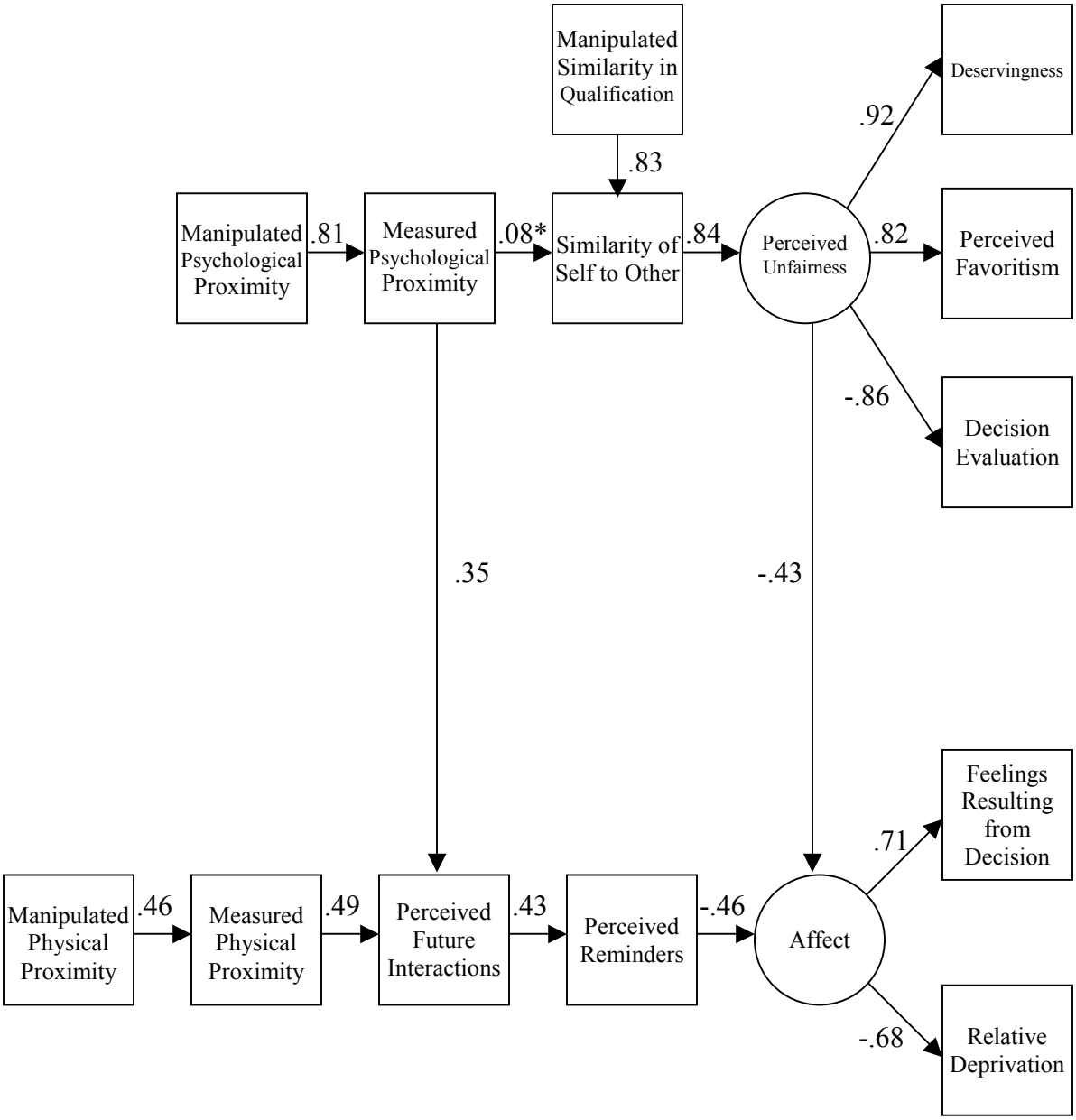
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p > .05$

Figure 10. Results of SEM Analysis for Modified Model in Job Scenario in Study 4.



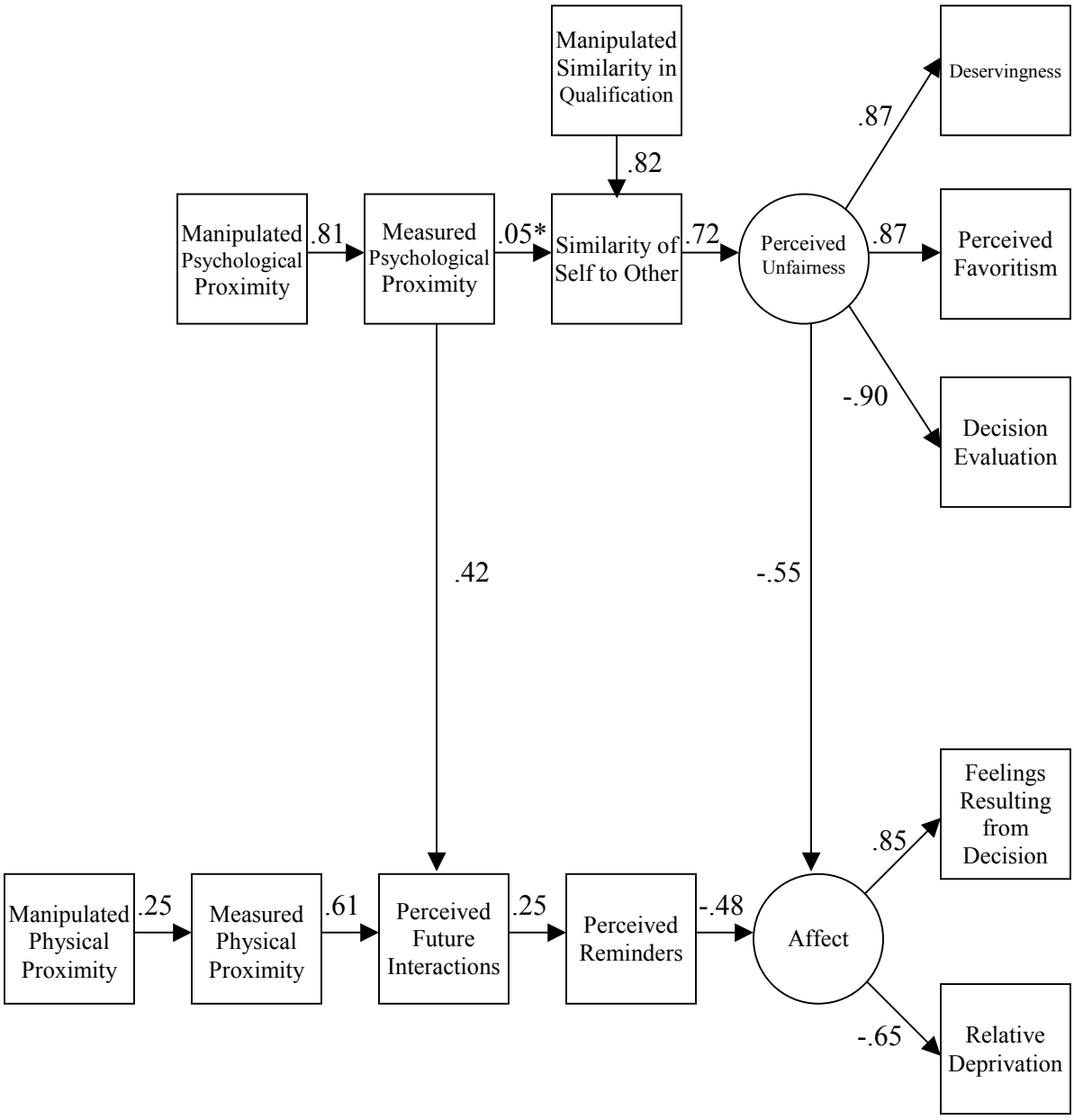
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.

Figure 11. Results of SEM Analysis for Hypothesized Model in College Scenario in Study 5.



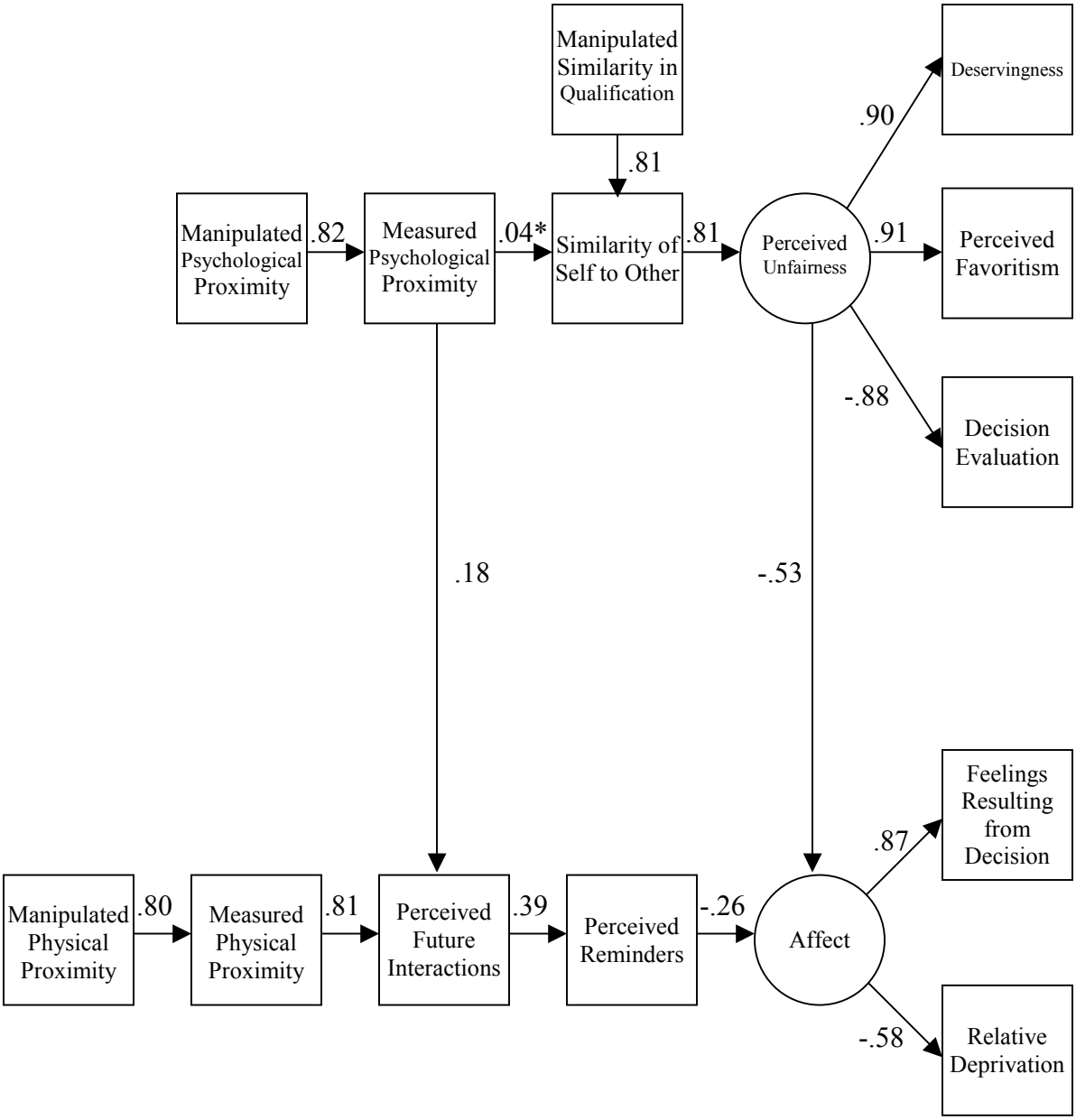
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p = .06$

Figure 12. Results of SEM Analysis for Hypothesized Model in Fraternity Scenario in Study 5.



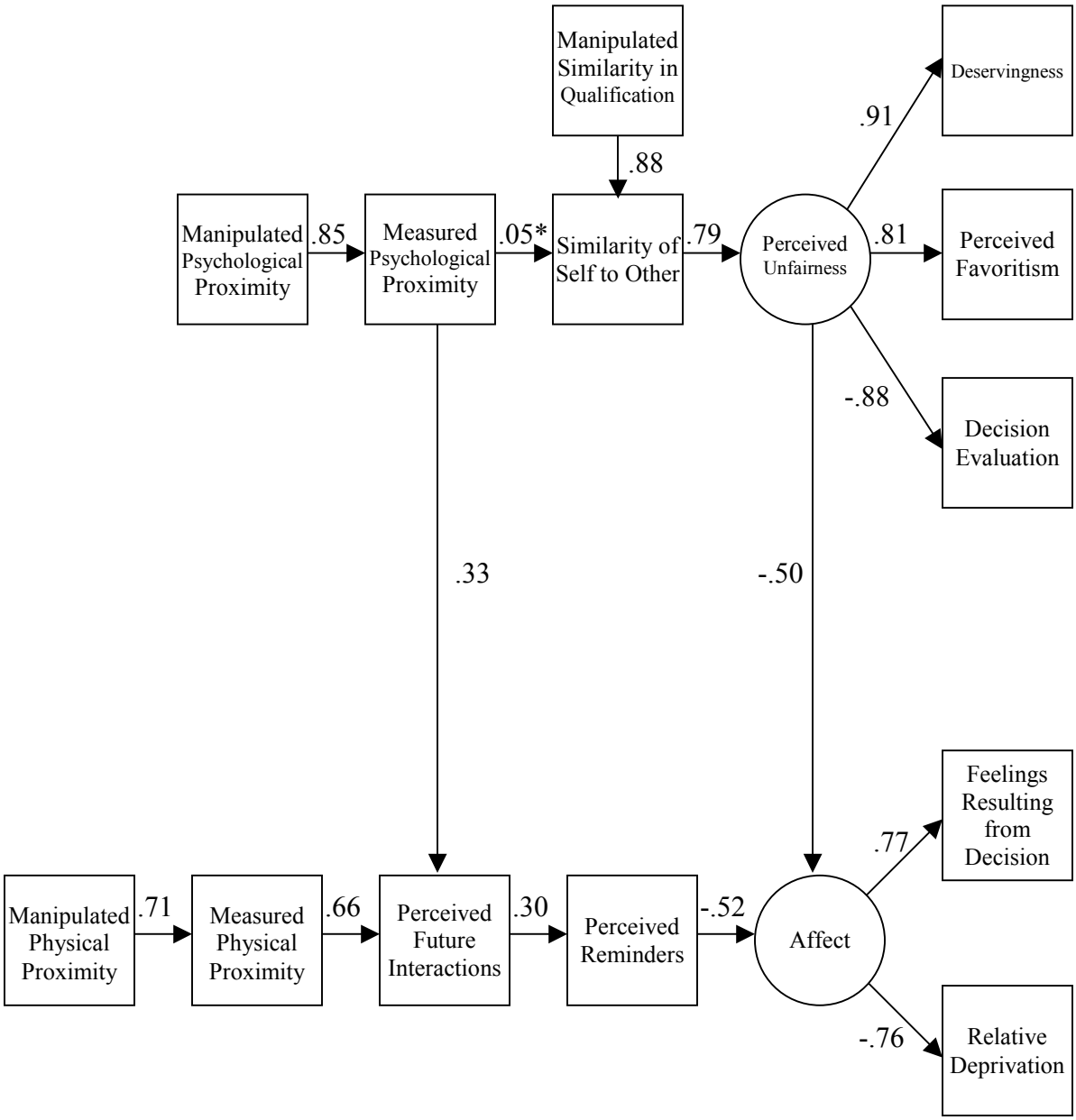
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p = .25$

Figure 13. Results of SEM Analysis for Hypothesized Model in Work Scenario in Study 5.



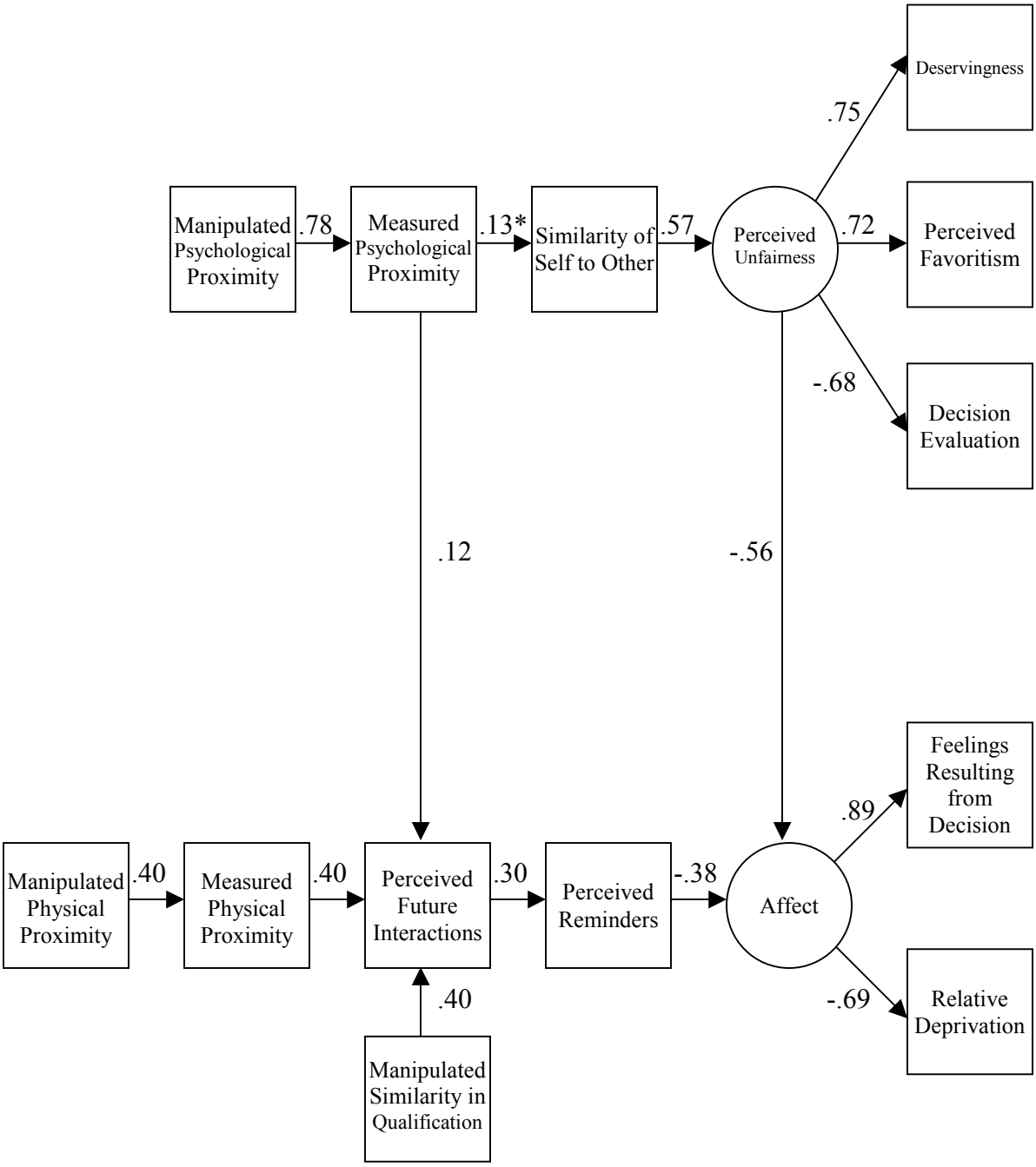
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p = .32$

Figure 14. Results of SEM Analysis for Hypothesized Model in Job Scenario in Study 5.



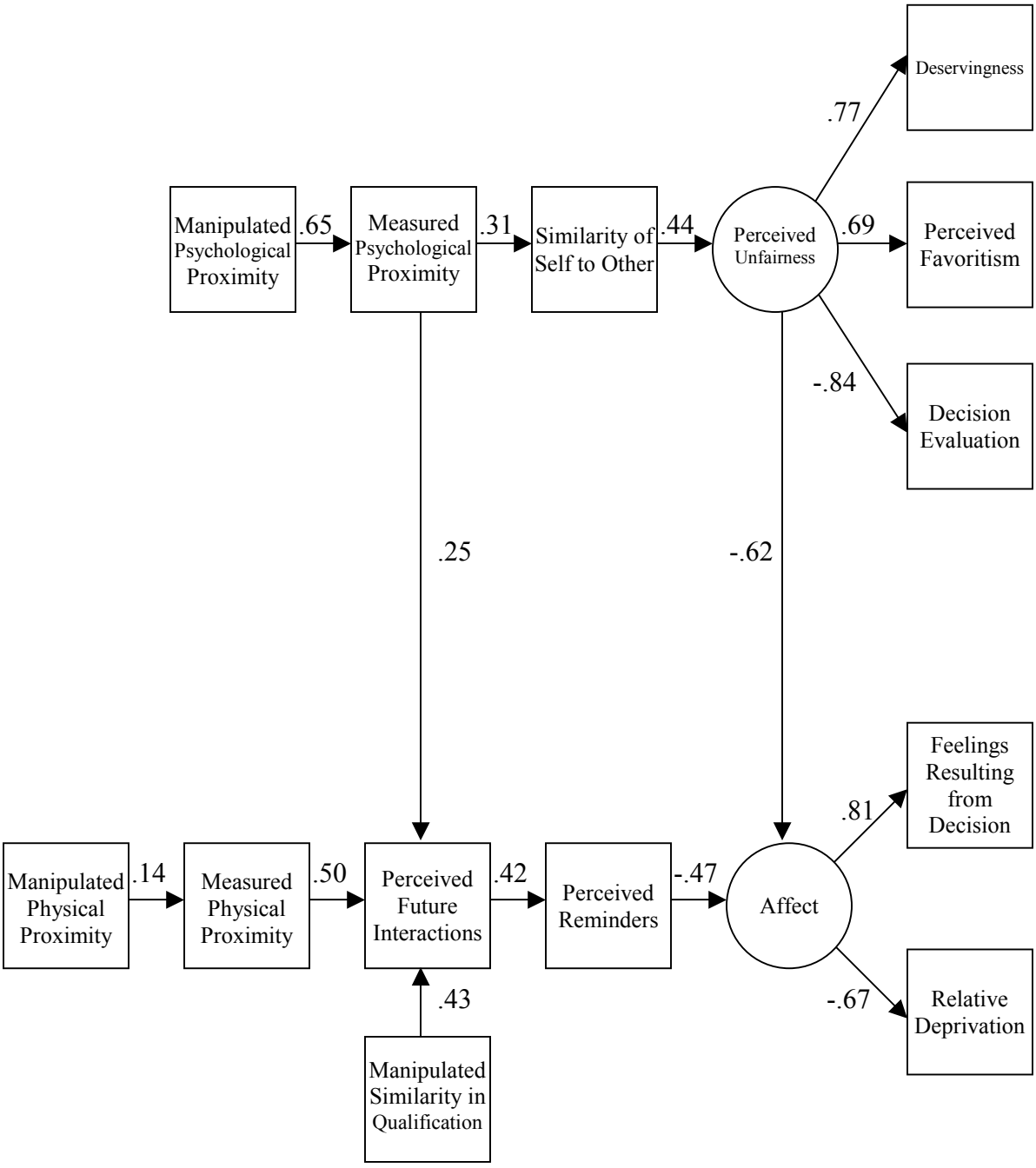
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p = .06$

Figure 15. Results of SEM Analysis for Hypothesized Model in College Scenario in Study 6.



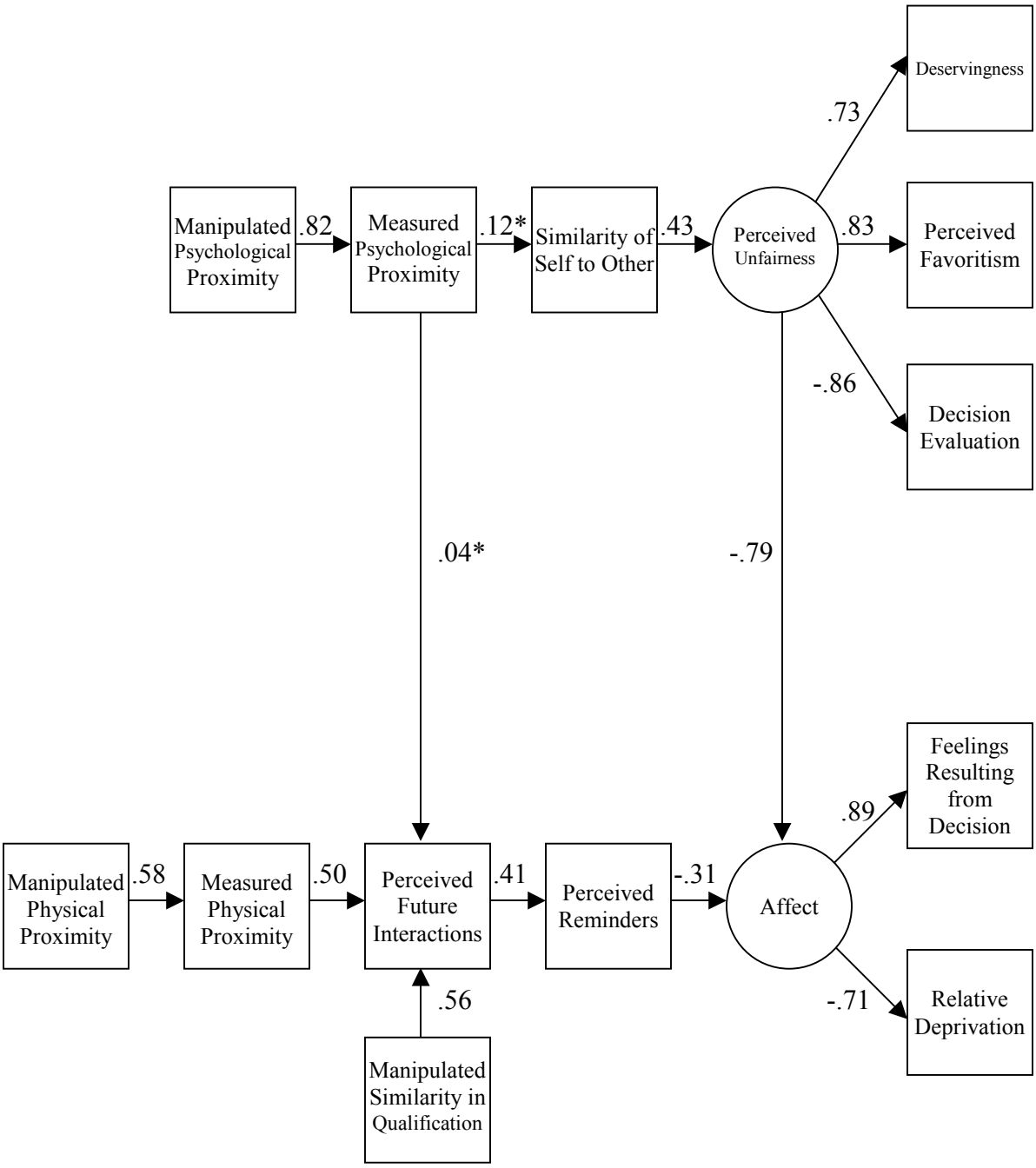
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p = .08$

Figure 16. Results of SEM Analysis for Hypothesized Model in Fraternity Scenario in Study 6.



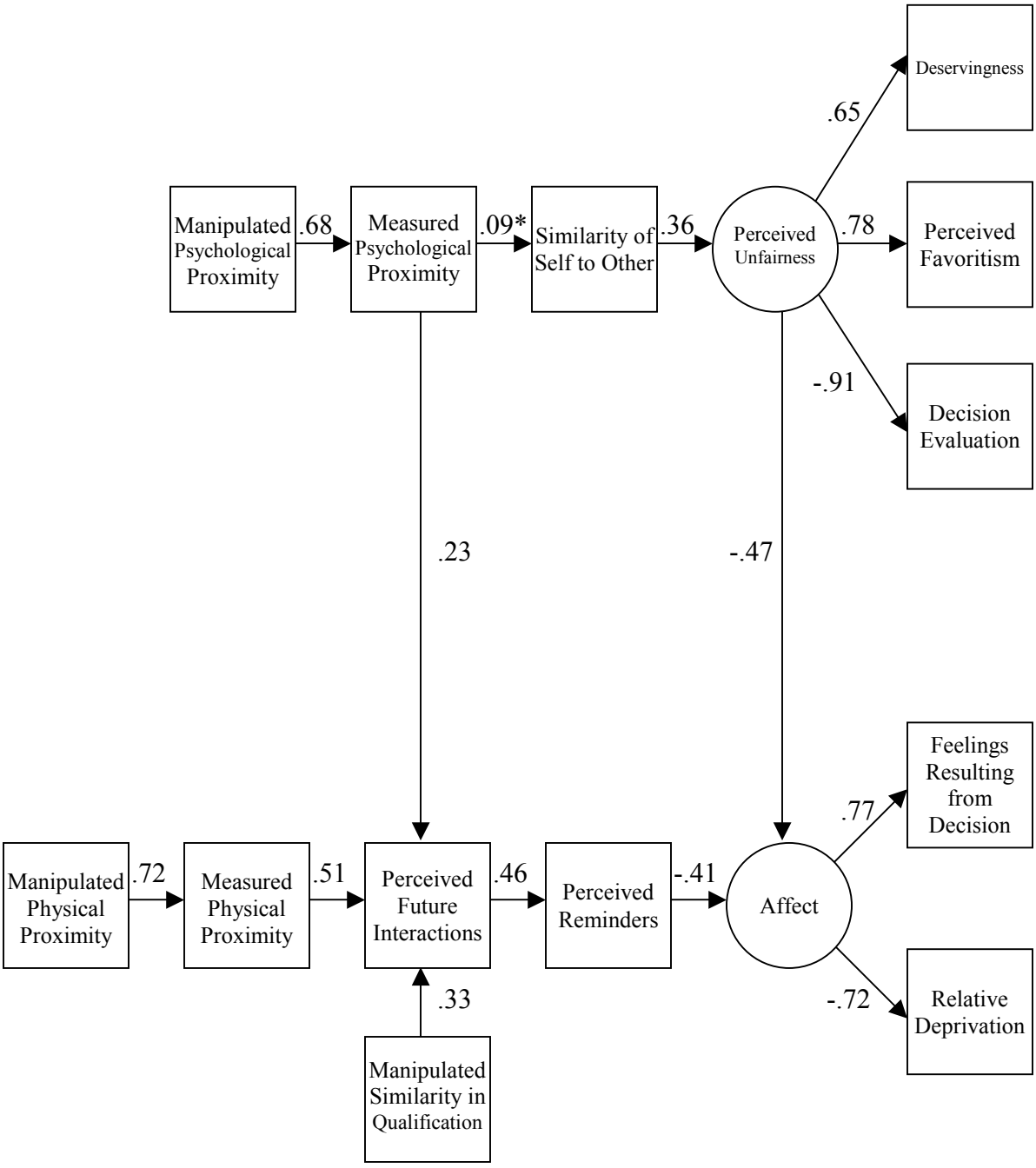
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.

Figure 17. Results of SEM Analysis for Hypothesized Model in Work Scenario in Study 6.



Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p > .10$

Figure 18. Results of SEM Analysis for Hypothesized Model in Job Scenario in Study 6.



Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p = .25$

Appendix A: Study 1

This study was not designed to explore the specific issues raised in the current studies, but rather evolved from earlier research by the present author and led to the research specifically designed to address issues of proximity. The pilot research addressed here involved an assessment of responses to preferential treatment given to a categorically similar-categorically dissimilar outgroup, at some cost to members of the participant and his/her ingroup. It was anticipated that greater negative affect would be generated when a categorically similar outgroup was benefited.

Participants

As partial completion towards a course credit, two hundred and three University of North Carolina at Chapel Hill (UNC-CH) students completed a questionnaire that was randomly embedded within several other questionnaires.

Materials and Procedure

Participants were asked to imagine that the University of North Carolina system (which oversees all 16 public universities in the state of North Carolina) had decided to raise tuition rates for the upcoming school year. The vignette explained that rates were set to increase by 8% at UNC-CH, but only by 3% at either a nearby (North Carolina State) or distant (Appalachian State) university. Specific monetary figures were provided as examples (e.g., in-state tuition increased from $11,978 to $12,337 at UNC-CH). The consequences of this increase were also manipulated between-subjects. Participants in the neutral condition were told that they would be unaffected by this increase because of their upcoming graduation, while participants in the negative condition were told that they would no longer be able to attend UNC-CH on a full-time basis, delaying their graduation by at least a year.

Thus, the experiment employed a 2 (categorically similar or dissimilar) by 2 (Consequences: negative or neutral) between-subjects design.

Participants next completed 18 questions in which they assessed the quality of the decision to increase tuition as well as how they believed the decision would make them feel. These were answered using a 7-point response scale in which lower scores indicated more negative affect. They also completed several manipulation checks to establish that participants perceived the manipulation of consequences, and their perceptions of categorical similarity of the favored school to UNC-CH. These were also completed using a 7-point scale.

Results

Manipulation Checks

The manipulation checks were analyzed using three separate 2 x 2 factorial ANOVAs, with Consequences and Categorical Similarity as the between-subjects factors and the three manipulation checks as the dependent variables. Analyses indicated that participants perceived the nearby school as geographically closer to, and more likely to be rivals with, UNC-CH than the distant school, F (1, 199) = 202.4, $p < .001$, and F (1, 199) = 635.16, $p < .001$, respectively. Although it appeared that participants perceived category differences between the nearby and distant schools, they were not satisfactorily aware of the consequences manipulation. Participants in the negative and neutral consequences groups did not differ in their perceptions of the consequences that would result from tuition increase, F (1, 199) = .42, $p = .52$. This may have occurred because participants in both the neutral (M = 4.60) and negative (M = 4.8) conditions foresaw negative implications from the tuition increase.

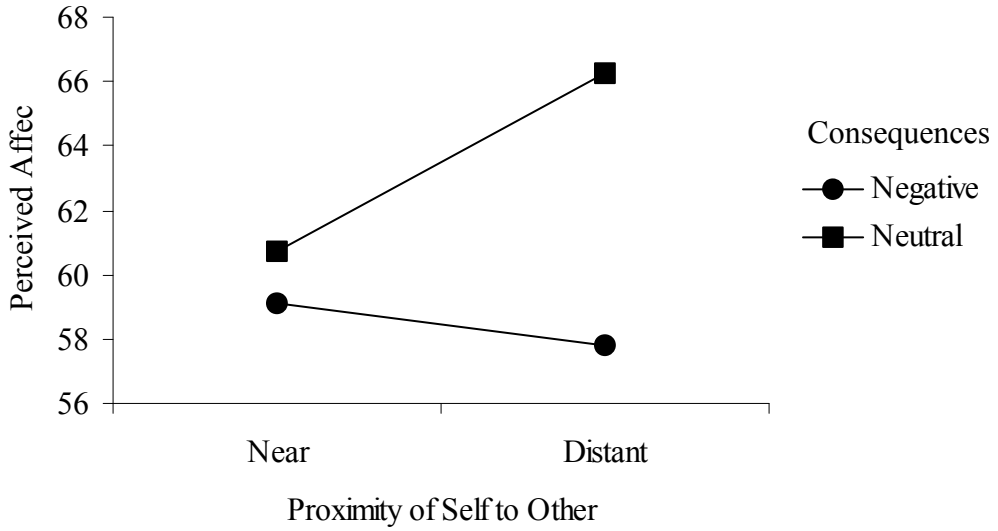
Components Analyses

To verify the appropriateness of a single measure of negative affect, the 18 questions assessing evaluations of the tuition increase and the emotions experienced as a result were analyzed using a principal components analysis (PCA). Three eigenvalues greater than 1 were obtained, predicting 48%, 12%, and 10% of the variance, respectively. For this reason, separate 1, 2, and 3 factor solutions were computed using oblique rotations in the latter two solutions. The 1-factor solution produced relatively strong loadings ranging from .45 to .83, and was judged the most appropriate of the three solutions. The 2- and 3-factor solutions were judged to be less adequate because they failed to yield simple structure (i.e., high loadings on one factor and low loadings on another) along several items.

Primary Dependent Variable

The PCAs indicated that the 18 items were generally measuring a single construct and appropriate for aggregation. These were combined to form a single measure of negative affect, with scores ranging from 18 to 126, with lower values indicating greater negative affect. This variable served as the dependent variable in a 2 x 2 factorial ANOVA, with Categorical Similarity and Consequences as the independent variables.

The results can be viewed below:



Mean perceived negative affect as a function of proximity to self and other and consequences of decision.

As is clearly evident, participants perceived significantly more negative affect when the consequences were negative rather than neutral F (1, 199) = 7.69, p = .006, η^2 = .04. Although a significant main effect was not obtained for Category Similarity, F (1, 199) = 1.32, p = .25, η^2 = .007, there was a marginally significant interaction between Category Similarity and Consequences F (1, 199) = 3.54, p = .06, η^2 = .02. Tests of simple main effects found that negative affect did not differ significantly based on Category Similarity when the consequences were negative (p = .61). When the consequences were neutral, however, significantly more affect was reported when the rewarded other was similar rather than dissimilar (p = .03).

Appendix B: Study 2

The previous study provided some preliminary evidence that it feels worse when a categorically similar rather than categorically dissimilar group is better-treated than one's own (and thus oneself). It also suggested a number of theoretical and practical changes that were incorporated into the primary experiment addressed below. From a practical standpoint, it is possible that the scenario itself was a bit too complex for participants, with too many pieces of information influencing their responses, perhaps resulting in forgetting of the critical details of the manipulation itself. It was also clear that categorical similarity-dissimilarity, while perceived and seemingly having the anticipated effect, also involved physical distance. In the upcoming experiment, the scenarios were simplified as much as possible, eliminating the consequences manipulation and specifically highlighting the hopefully unconfounded categorical similarity between the self and the IB. Additional instructions were also included to promote better understanding and retention of the manipulations.

The primary study also included a number of theoretical differences from the pilot study. In the pilot study, an ingroup member provided better treatment to an outgroup rather than to an ingroup or, in other words, the outgroup was not as heavily penalized (i.e., having received a smaller tuition increase) as the ingroup. The current experiment, however, utilized four situations in which either a person who was close to or distant from oneself in some way was better rewarded, rather than less penalized, than oneself. In addition, while the pilot study involved a situation in which an entire group (e.g., all UNC-CH students) was disproportionally treated, in the present study it was a single individual (oneself) who was less rewarded in comparison to another individual. Finally, while the initial research focused

almost exclusively on negative affect, the current study also incorporated several additional measures regarding endorsement of normative beliefs that were pertinent to each situation.

Method

Participants

One-hundred and forty-seven students at UNC-CH participated in this study in return for partial course credit.

Materials and Procedure

Vignettes. Participants read four different vignettes, each of which asked them to imagine specific scenarios in which another was awarded a large amount of a non-exclusive resource (i.e., more than one person could receive the benefit). The individual receiving the large reward was either categorically near or distant. In the first simulation scenario (hereafter referred to as the "Work" scenario), participants worked at a telecommunications company in which they received a smaller annual bonus than another employee whom they knew or did not know well. In another simulation, labeled the "Tuition" scenario, participants' parents provided less tuition-payment assistance than that provided to either a slightly younger or considerably younger sibling. In the "Fraternity" scenario, a participant's application for a partial scholarship was denied, while another fraternity member whom one knew well or did not know well successfully received the scholarship. In the final vignette, the "Instructor" scenario, participants were penalized for turning in a late paper while another student whom one knew well or did not know well received no penalty. For all vignettes except the one involving the parents, the manipulation of close-distant was assumed to pertain to both psychological and physical closeness. The close-distant parent scenario pertained to closeness-distance in time rather than to psychological closeness-distance. For

each scenario, participants were told explicitly that they were equal to the better-rewarded person along dimensions relevant to the decision. For example, in the Work scenario, participants were told that the self and the other employee were of similar age, education, and seniority, with approximately equal job performance records. The categorical distance between the self and the other was also highlighted, such as mentioning in the fraternity scenario that the "close" IB was someone with whom they interacted on a daily basis, or that the "distant" IB was someone whom they recognized but did not know especially well. Each participant read all four scenarios (Work, Tuition, Fraternity, and Instructor), two or which contained a near IB and two of which contained a distant IB. The presentation of both the scenarios themselves and the near-distant condition were counterbalanced to minimize potential order effects.

Each scenario was preceded by the following instructions in order to focus participants' attention on the specific manipulations: "Please read the following scenario very carefully, as you will be asked several questions that test how well you remembered the information presented below. You will then be asked a series of questions regarding how you believe you would feel if you were actually placed in this scenario." After each scenario, participants were again told to make sure they had read each vignette carefully before answering the questions, and that they should not reread any scenario once they had begun answering questions. These instructions were designed to insure clear participant understanding of the manipulations.

Measures. After each scenario, participants completed several manipulation checks, primarily directed toward making salient the categorical distance between the self and the IB (e.g., "Given the location of this other employee's office in relation to mine, I am probably

friends with this other employee," "My sister and I are of similar age.") Next, participants answered nine questions regarding perceived fairness of the reward allocation, general evaluations of the allocation, and predicted feelings resulting from the allocation. These questions were intended to provide an overall measure of negative affect experienced as a result of each injustice situation. Participants also completed questions that probed their endorsement of normative beliefs that were relevant to each scenario (e.g., "Parents should treat all of their children equally," "Instructors should apply the same set of rules to all of their students."). Lastly, participants completed additional manipulation checks to ensure that they understood their receipt of unequal rewards and that their qualifications were equal to those of the IB.

All questions were completed using 7-point response scales. After completing questions following each scenario and before moving onto the next scenario, participants were given the following instructions: "You will now be presented with several more scenarios that are similar to the one you just read. Please try to treat each circumstance differently, so that your answers on the previous scenarios do not influence your answers on the other scenarios. As before, try and respond to the questions based on how you believe you would feel if you were really placed in this situation." This was done because of concern that participants would be able to determine the manipulations relatively easily and let this influence their results. It was hoped that these instructions would encourage participants to differentiate their responses across scenarios.

Results

Manipulation Checks

The manipulation checks were analyzed using four separate MANOVAs, one for each scenario, with participants' categorical distance to the IB serving as the independent variable. All omnibus multivariate tests were significant, $p < .001$, and the individual manipulation checks were analyzed using separate ANOVAs. For the Work scenario, it appears that the manipulations had their intended effect. Participants believed that they were friends with, similar to, and regularly conversed with the IB to a significantly greater extent in the near vs. distant condition (for all three measures, $p < .001$). In both conditions, they also recognized that they received less compensation than the IB (for near, $M = 6.61$, for distant, $M = 6.37$), and that their performance was similar to that of the IB (for near, $M = 6.43$, for distant, $M = 5.73$). Unexpectedly, the extent to which participants believed their job performance was similar to the IB differed significantly across conditions, but it was not expected that such a difference would have a meaningful impact on responses to the primary dependent variables.

The manipulation checks were not as unequivocal in the Tuition scenario. Participants in the near condition believed they were more similar in age (for near, $M = 4.78$, for distant, $M = 2.07$), had a closer relationship to (for near, $M = 5.11$, for distant, $M = 4.14$), and had more similar friends and interests with (for near, $M = 4.41$, for distant, $M = 2.54$) the IB than did those in the distant condition, $p < .001$. However, it should be noted that, for all these measures, the means were below the neutral point on the 7-point response scale, indicating that, although participants perceived greater similar in the near condition, they did not perceive much similarity overall. Participants did not differ significantly across conditions (for near, $M = 5.09$, for distant, $M = 4.91$) when asked a more general measure of

perceived similarity of the self to the IB. However, on this item, the means were above the neutral response, indicating considerable perceived similarity in both groups. This may have occurred because the first two similarity measures were presented immediately after reading the scenario, while the third measure was asked near the end of the questionnaire. In general, participants in both conditions realized that, relative to the IB, they achieved equal academic success (for near, $M = 4.99$, for distant, $M = 5.10$) and were admitted to similar universities (for near, $M = 5.68$, for distant, $M = 6.14$). Inexplicably, this latter measure significantly differed across conditions.

A good understanding of the manipulations was indicated in the Fraternity scenario. Perceptions of friendship (for near, $M = 5.82$, for distant, $M = 1.95$), similarity (for near, $M = 5.56$, for distant, $M = 5.21$), and frequency of interaction (for near, $M = 5.96$, for distant, $M = 1.95$) with the IB differed in the predicted direction, $p < .001$. Participants in both conditions recognized a similarity in academic achievements between themselves and the IB (for near, $M = 5.56$, for distant, $M = 5.21$).

Within the Instructor scenario, participants perceived both a greater frequency of conversation in the near condition (for near, $M = 6.02$, for distant, $M = 1.97$) and recognized that both the self and IB were enrolled in the same class section (for near, $M = 5.56$, for distant, $M = 1.99$), $p < .001$. They also perceived greater similarity to the IB in the near condition ($M = 4.61$) than in the distant condition ($M = 4.24$), $p = .02$, although it appears that similarity was rated as greater than neutral even in the distant condition. In summation, the manipulation checks indicated that participants had an adequate understanding of the manipulations and other key information within the vignettes for all scenarios except for the Instructor scenario.

Components Analysis

The nine questions intended to measure the negative affect construct were analyzed using four separate principal components analyses, one for each scenario type. Both the Work scenario and Tuition scenario had only a single eigenvalue greater than 1, predicting 72% of the variance in the former and 73% of the variance in the latter. For this reason, one-factor solutions were computed for both of these scenarios. Factor loadings were generally strong, ranging from .75 to .89 in the Work scenario, and .71 to .89 in the Tuition scenario. Both the Fraternity scenario and the Instructor scenario, however, yielded two eigenvalues greater than 1, indicating the possible appropriateness of two-factor solutions. One- and two-factor solutions were conducted for both scenarios, using oblique rotation for the two-factor solutions. In the Fraternity scenario, loadings in the one-factor solution were generally adequate, ranging from .60 to .80. Loadings in the two-factor solution were slightly better, ranging from .54 to .92; however there was an absence of simple structure for several items. Because of this and for the sake of parsimony, a one-factor solution was deemed to be more appropriate. Similar findings occurred for the Instructor scenario. Loadings ranged from .67 to .89 in the one-factor solution and from .49 to .93 in the two-factor solution; however, simple structure was not obtained for several items. For these reasons, the one-factor solution was also judged more suitable.

Primary Dependent Variables

Based on the PCAs, the 9 negative affect items were combined separately for each scenario, generating four measures of overall negative affect, with possible scores ranging from 9 to 63. Each of the scenarios was analyzed using separate MANOVAs, with IB categorical distance as the independent variable and the overall negative affect measure and

separate normative measures serving as dependent variables. The individual measures were then analyzed using separate ANOVAs. The means for the primary dependent variables and the results of their corresponding ANOVAs are presented in the tables on the following pages:

Mean for Primary Dependent Variables for Work Scenario as a Function of Categorical Distance Between Injustice Beneficiary (IB) and Self

	Self Distance to IB	
Variable	Near	Distant
Negative Affect[a]	28.19	32.71
"If two people provide equal contributions to a task, they should be rewarded equally."[b]	6.53	6.36
"My supervisor favors the other employee over me."[b]	5.21	4.85
"There's probably a good reason that the other employee received a larger bonus than myself."[b]	4.53	5.04

[a]Lower values indicate greater reported negative affect. [b]Higher values indicate greater agreement with this statement.

Analysis of Variance Results for Dependent Measures in Work Scenario

Dependent Variable	df	*F*	η^2	*p*
Negative Affect	1	8.38	.06	.004
"If two people provide equal contributions to a task, they should be rewarded equally."	1	1.09	<.01	.299
"My supervisor favors the other employee over me."	1	3.60	.03	.060
"There's probably a good reason that the other employee received a larger bonus than myself."	1	4.99	.04	.027

Note. For all ANOVA results, Categorical Similarity of IB to self served as the independent variable. For all Dependent Variables, $df_{error} = 138$.

Mean for Primary Dependent Variables for Tuition Scenario as a Function of Categorical Distance Between Injustice Beneficiary (IB) and Self

	Self Distance to IB	
Variable	Near	Distant
Negative Affect[a]	44.00	44.47
"Parents should treat all of their children equally."[b]	5.54	5.81
"All things being equal, parents should provide equal amounts of financial support to their children."[b]	5.14	5.31
"My parents favor my sister over me."[b]	3.70	3.43
"There's probably a good reason why my parents agreed to send my sister to a more expensive school than myself."[b]	4.91	5.16

[a]Lower values indicate greater reported negative affect. [b]Higher values indicate greater agreement with this statement.

Analysis of Variance Results for Dependent Measures in Tuition Scenario

Dependent Variable	df	*F*	η^2	*p*
Negative Affect	1	.06	<.01	.81
"Parents should treat all of their children equally."	1	1.42	.01	.24
"All things being equal, parents should provide equal amounts of financial support to their children."	1	.43	<.01	.51
"My parents favor my sister over me."	1	.96	<.01	.33
"There's probably a good reason why my parents agreed to send my sister to a more expensive school than myself."	1	.88	<.01	.35

Note. For all ANOVA results, Categorical Similarity of IB to self served as the independent variable. For all Dependent Variables, $df_{error} = 136$.

Mean for Primary Dependent Variables for Fraternity Scenario as a Function of Categorical Distance Between Injustice Beneficiary (IB) and Self

	Self Distance to IB	
Variable	Near	Distant
Negative Affect[a]	29.52	31.06
"Equally qualified candidates should receive equal rewards."[b]	5.17	5.03
"The fraternity member receiving a scholarship is favored over me."[b]	4.80	4.81
"There's probably a good reason why this fraternity member received a scholarship while I did not."[b]	4.87	5.27

[a]Lower values indicate greater reported negative affect. [b]Higher values indicate greater agreement with this statement.

Analysis of Variance Results for Dependent Measures in Fraternity Scenario

Dependent Variable	df	*F*	η^2	*p*
Negative Affect	1	2.96	.02	.09
"Equally qualified candidates should receive equal rewards."	1	.32	<.01	.58
"The fraternity member receiving a scholarship is favored over me."	1	<.01	<.01	.96
"There's probably a good reason why this fraternity member received a scholarship while I did not."	1	3.49	.03	.06

Note. For all ANOVA results, Categorical Similarity of IB to self served as the independent variable. For all Dependent Variables, $df_{error} = 136$.

Mean for Primary Dependent Variables for Instructor Scenario as a Function of Categorical Distance Between Injustice Beneficiary (IB) and Self

	Self Distance to IB	
Variable	Near	Distant
Negative Affect[a]	28.46	29.14
"Instructors should apply the same set of rules to all, of their students."[b]	6.48	6.37
"It's okay for instructors to slightly 'bend the rule' for some students but not for others."[b]	1.95	1.82
"My professor favors this other student over me."[b]	5.14	5.21
"There's probably a good reason why my professor penalized my tardy paper but not the other student's."[b]	3.68	3.83

[a]Lower values indicate greater reported negative affect. [b]Higher values indicate greater agreement with this statement.

Analysis of Variance Results for Dependent Measures in Instructor Scenario

Dependent Variable	df	*F*	η^2	*p*
Negative Affect	1	.18	<.01	.68
"Instructors should apply the same set of rules to all, of their students."	1	.29	<.01	.59
"It's okay for instructors to slightly 'bend the rule' for some students but not for others."	1	.37	<.01	.55
"My professor favors this other student over me."	1	.11	<.01	.74
"There's probably a good reason why my professor penalized my tardy paper but not the other student's."	1	.28	<.01	.60

Note. For all ANOVA results, Categorical Similarity of IB to self served as the independent variable. For all Dependent Variables, $df_{error} = 139$.

As can be seen upon viewing the tables, exclusively nonsignificant results were obtained in both the Tuition and Instructor scenarios, although the means were generally in the predicted direction. More promising results were found in the Work and Fraternity scenarios, and so the focus of the discussion section will be on these two areas.

Work Scenario. The omnibus multivariate test was significant, *Pillai's Trace* = .07, F (4,135) = 2.5, p=.04. Participants reported experiencing significantly more negative emotions when the IB was near rather than distant. The near IB condition was also significantly more likely to view the unequal reward allocation as being the result of favoritism and less likely to believe this decision was made for an adequate reason. However, there were no significant differences in the endorsement of the normative belief that equal contributions should be rewarded equally, possibly because the mean response was very high across both groups.

Fraternity Scenario. Here, the overall multivariate test was not significant, *Pillai's Trace* = .03, F (4,133) = 1.10, p=.36; however, greater negative affect was reported in the near condition, and this difference was marginally significant. Additionally, participants were less likely to believe that the allocation decision was made for valid reasons in the near condition, once again at a marginally-significant level. No significant differences were found in the endorsement of the two normative statements pertinent to this scenario.

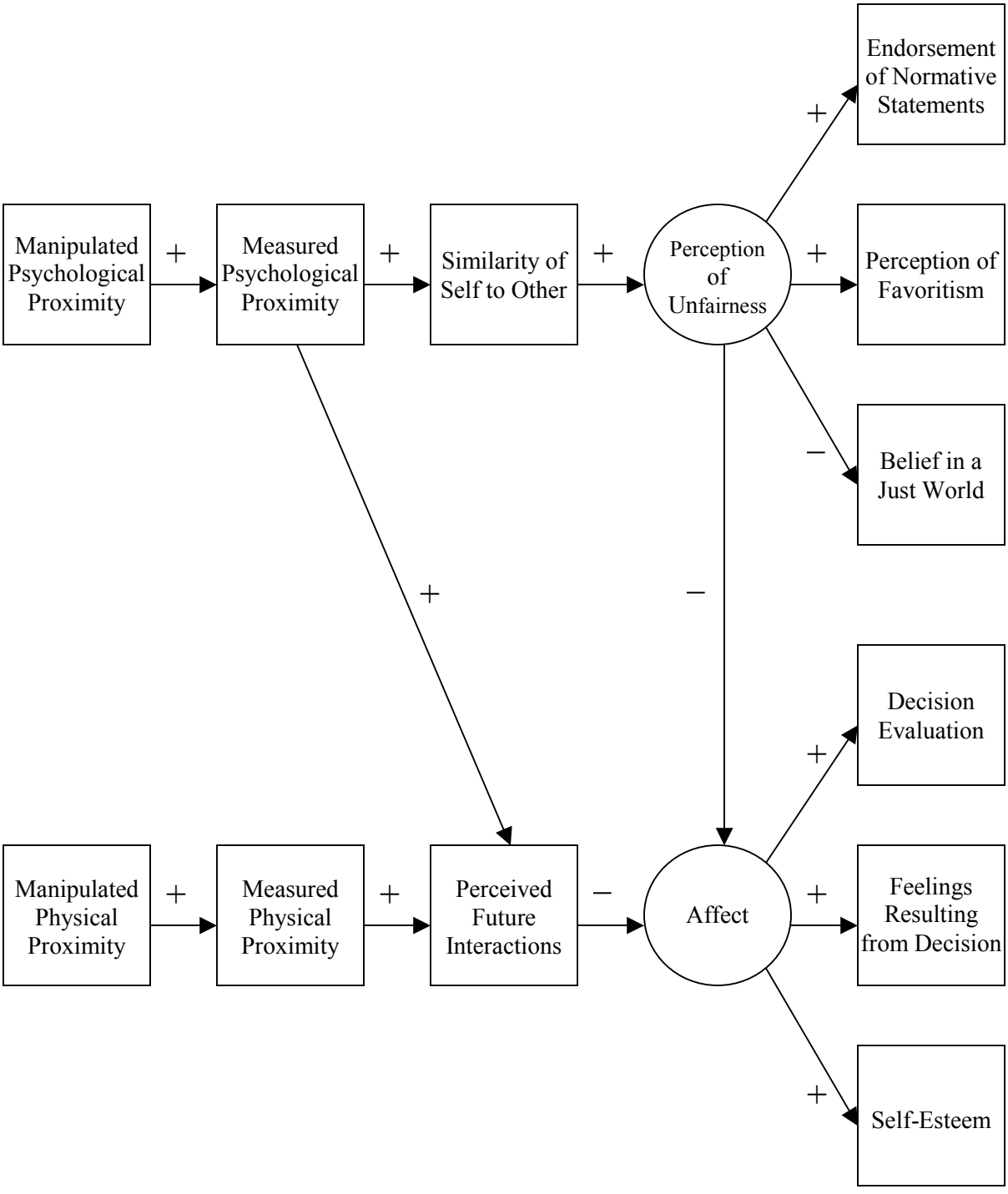
Appendix C: Study 3

In Study 2, the fairly strong results with two scenarios and the suggestive results with two other scenarios seem to indicate that respondents tended to find it more upsetting when someone close to them was unfairly benefited. The next study was undertaken to more directly test the hypothesized model, providing further clarification of two aspects of prior findings: 1) What is meant by "close"? and 2) Why is it more upsetting when it is someone "close"? Regarding closeness in relation to proximity, the first two studies and other related research have used the term "close" in a very broad and general sense. For example, Tesser's SEMM (1988) never gives a clear definition of closeness, although the research examples seem to focus primarily on psychological (e.g., siblings and friends) rather than physical proximity.

In the upcoming study, two conceptually different types of closeness, physical and psychological, were investigated. Although the two are often related (we're typically in close physical proximity with our friends, and we're most likely to become friends with those who are physically close), it is certainly possible for us to be high in one area of closeness and low in the other. For example, high psychological but low physical proximity would be present in "long-distance" friendships, while low psychological and high physical closeness might exist with one's coworkers. As was previously discussed, varying degrees of physical and psychological proximity were predicted to influence responses to non-judicial reward allocations through disparate causal pathways.

In this experiment, participants read vignettes in which another person, portrayed as either psychologically close or neutral, and either physically close or distant, was provided with an unshared resource. Participants then completed several measures designed to probe

perceptions of affect, fairness, and proximity. The hypothesized model for this experiment is presented below:



Predicted pathways through which proximity influences negative affect following non-judicial reward allocations.

It was hypothesized that when psychological proximity was manipulated as high, the accompanying measure of perceived psychological proximity would be higher than when psychological proximity was low. It was believed that greater perceived psychological proximity would then predict greater perceived similarity between oneself and the IB. As similarity increased, it was hypothesized that perceived unfairness would also increase, as evidenced by a greater perception of IB favoritism, a greater endorsement of equity norms, and decreased belief in a just world. An increase in perceived unfairness was then hypothesized to predict a lowering of affect, including a more negative evaluation of the allocation decision, greater negative feelings resulting from this decision, and a lowering of one's self-esteem. Further, it was hypothesized that perceived similarity would only be predicted by psychological proximity, but not physical proximity.

When physical proximity was manipulated as high, a corresponding increase in measured physical proximity was also hypothesized. It was believed that greater perceived proximity would lead to expectations of more frequent interactions with the IB. As one perceived greater future interactions, it was hypothesized that affect would then decrease. It was also hypothesized that measured psychological proximity would significantly predict future interactions, also leading to decreased affect.

Several mediational hypotheses were also proposed. It was surmised that the prediction of unfairness by psychological proximity would be mediated by similarity, demonstrating the necessity for one to perceive similarity in order for psychological proximity to increase perceived unfairness. It was also believed that perceived unfairness would mediate the relationship between similarity and affect, so that one must perceive

unfairness in order for increased similarity to lower affect. Finally, future interactions were hypothesized to mediate the prediction of affect by both psychological and physical proximity, giving evidence that the lowering of affect based on either physical or psychological proximity is possibly contingent upon perceiving future interactions.

Method

Participants

One-hundred and eighty-four undergraduates participated in this study, earning partial credit towards a research participation requirement.

Vignettes and Manipulations

Similar to previous studies, participants were presented with three different scenarios, in which a seemingly equal other was rewarded a non-exclusive resource while they were not. The Work and Fraternity scenarios were virtually identical to those in the previous study. A new scenario, labeled the College scenario, was created in which the participants were asked to imagine that they were high school seniors who were denied admission to their preferred university while another student was accepted. The instructions presented at the beginning and end of each scenario were identical to those in the second experiment.

In each scenario, both psychological and physical proximity of oneself to the IB were manipulated. Participants who were psychologically close to the IB were described as “close friends” or “good friends." The acquaintanceship was described as casual in the neutral psychological proximity condition. The physical proximity manipulation was described as high (i.e., a fellow student at one’s high school, a member of one’s fraternity, or a coworker

in an adjoining cubicle) or low (a student at a high school across town, a member of another fraternity, or a coworker in an office across town).

Measures

After each vignette, participants completed a set of measures that were virtually identical across scenarios.

Manipulation checks, Similarity, and Future Interaction measures. As in the second experiment, participants first completed several manipulation checks that were designed to measure participants' perceived physical and psychological distance from the IB and to increase the salience of the manipulation.[1] Next, participants answered several questions assessing the extent to which they believed they were similar to the IB (e.g., "My academic record is similar to that of the student who was admitted to the university"), the frequency which they currently interacted with the IB (e.g., "I probably talk with the fraternity member receiving the scholarship on a frequent basis"), and the frequency which they believed they would interact with the IB in the future (e.g., "I will probably try and avoid interacting with this other employee in the future").

There was concern that the primacy and/or recency of the Similarity and Anticipated Future Interaction measures might disproportionately influence participant responses to the affect measures that followed. For example, it seemed plausible that memories of high similarity (or lack thereof) might be better retained than information regarding future interactions if participants completed the Similarity measures after the Anticipated Future Interaction measures. In such a case, it was thought that this might unduly influence the extent to which perceived similarity (rather than future interactions) resulted in Negative Affect. To prevent this, the presentation order of the Similarity and Anticipated Future

Interaction measures was counterbalanced. The order in which the three scenarios were presented was also counterbalanced, while the specific combination of conditions that participants received was randomly determined.

Affect measures. Also as in study two, participants answered questions evaluating the allocation decision and their feelings following the allocation decision. Several items from the Rosenberg self-esteem scale were also included, preceded by a statement such as "The decision to reject my application for a scholarship makes me feel the following:"

Perception of Fairness measures. Participants indicated their endorsement of normative beliefs relevant to each scenario, as in the second study. They also answered several questions assessing perceived favoritism towards the IB. Lastly, several questions adopted from Lipkus, Dalbert, and Siegler (1996) measured participants' Belief in a Just World (BJW; Lerner, 1980), or the extent to which they believed that people are generally deserving of the outcomes they receive.

Results

Measure Reliability

Reliability for each set of measures was assessed using Cronbach's alpha. The results are presented on the following page:

Reliability Analyses for Measures in Study 3

	Scenario		
Measure	College	Fraternity	Work
Measured Psychological Proximity	.88	.90	.89
Measured Physical Proximity	.91	.92	.81
Frequency of Present Interactions	.82	.94	.86
Similarity of Self to Other	.83	.83	.79
Anticipated Future Interactions	.79	.76	.60
Decision Evaluation	.92	.92	.93
Feelings Resulting From Decision	.89	.84	.91
Self-Esteem	.91	.89	.89
Normative Endorsement	.64	.76	.82
Perception of Favoritism	.40	.63	.73
Belief in a Just World	.81	.81	.81

Note. Values represent Cronbach's alpha.

Reliability was generally adequate, with the exceptions of the Anticipated Future Interactions measure in the Work scenario, the Normative Endorsement measure in the College Scenario, and the Perceived Favoritism measure in all three scenarios.

Manipulation Checks

The data were analyzed using separate MANOVAs for each scenario, with Manipulated Psychological Proximity and Manipulated Physical Proximity as the independent variables and the Measured Psychological Proximity, Measured Physical

Proximity, Frequency of Present Interactions, and Perceived Similarity of Self to IB serving as dependent variables. All omnibus multivariate tests were significant, $p < .001$, and the individual manipulation checks were analyzed using separate ANOVAs.

College scenario. As intended, participants in the Close Psychological Proximity condition saw themselves as psychologically closer ($M = 12.26$) and more similar ($M = 18.79$) to the IB than did participants in the Neutral Psychological Proximity condition (for Psychological Proximity, $M = 7.36$; for Perceived Similarity, $M = 17.95$). Participants high in Manipulated Psychological Proximity condition also saw themselves as engaging in significantly more frequent present interactions with the IB (for high condition, $M = 10.21$; for neutral condition, $M = 6.71$). Although this was not necessarily an intended consequence of the manipulation, this result was not surprising and was not considered a cause for concern.

For the Physical Proximity manipulation, results were as predicted, with participants high in this variable perceiving themselves as being in closer physical proximity to the IB ($M = 9.33$) and engaging in more frequent present interactions ($M = 8.13$) than did participants in the low physical proximity condition (for Manipulated Physical Proximity, $M = 7.70$; for Perceived Similarity, $M = 7.57$). Unexpectedly, Physically Distant participants saw themselves as having higher psychological proximity ($M = 9.51$) than did those in the Physically Close condition ($M = 9.37$). It is not clear why this occurred, however, because this variable did not interact significantly with Psychological Proximity, and, because this effect did not occur with the other two scenarios, this may have been a random**,** albeit statistically significant, fluctuation in the data. In summary, it appeared that both manipulations were successful for this scenario.

Tuition scenario. The manipulations for this scenario also had their intended effects, with Psychologically Proximal participants perceiving greater Psychological Proximity (M = 12.15) and greater similarity (M = 18.38) than did participants in the low Psychological proximity condition (for Psychological Proximity, M = 7.57; for Similarity, M = 17.02). Present interactions were also seen as more frequent in the high Psychological Proximity condition (for high condition, M = 10.28, for neutral condition, M = 6.34). An unanticipated but not surprising finding was that Measured Physical Proximity was also higher for the high Psychological Proximity condition (for high condition, M = 10.68, for neutral condition, M = 9.51).

The Physical Proximity measure indicated that the Physical Proximity manipulation was successful (for High, M = 10.52; for Low, M = 9.46), and Present Interactions were perceived to occur more frequently in the High Physical Proximity condition (for High, M = 8.35; for Low, M = 7.71). None of the interactions were significant for any dependent variables.

Work scenario. The differences in Measured Psychological Proximity were as predicted based on Manipulated Psychological Proximity (for High, M = 11.51; for Low, M = 7.43). However, there were also significant interactions in this scenario for the other three measures. It appeared that measured physical proximity was higher when Manipulated Physical Proximity was high rather than low, as expected; however, this difference was even larger when Manipulated Psychological Proximity was low. Also as predicted, mean scores on perceived present interactions were higher when Manipulated Physical Proximity was high. This difference increased when Manipulated Psychological Proximity was low.

Neither one of these interactions seemed contradictory to theoretical predictions and did not raise any great alarm.

A potentially disquieting result was obtained, however, with the Similarity measure. Although there was greater perceived similarity when participants were psychologically close (M = 18.52) rather than distant (M = 17.98) in the low physical proximity condition, when physical proximity was high, participants saw greater similarity in the low (M = 19.11) rather than the high psychological proximity condition (M = 18.18). In summation, although the manipulations were both successful for this scenario, participants did not necessarily see themselves as more similar to the IB when that person was psychologically close rather than distant.

Analyses of Variance

Although the analyses of primary interest for this experiment involved structural equation (SEM) models, a set of ANOVAs was performed to allow for comparisons with the results of the previous experiments. To do this, the decision evaluation items and the items measuring reported feelings resulting from the allocation decision were combined, producing a measure of overall affect with possible scores of 8 to 64. For each scenario, these were analyzed initially using 2 (Psychological Proximity: Close or Neutral) by 2 (Physical Proximity: Close or Distant) by 2 (Measure Order: Similarity measure presented first or Anticipated Future Interactions presented first) x 6 (Scenario Order) ANOVAs to test for possible order effects. No significant order effects were obtained in either the Fraternity or Work scenarios. There were two significant and two marginally significant interactions for the College scenario. These involved the two order effect variables, but none of them appeared theoretically meaningful. Given this absence of substantive order effects, each

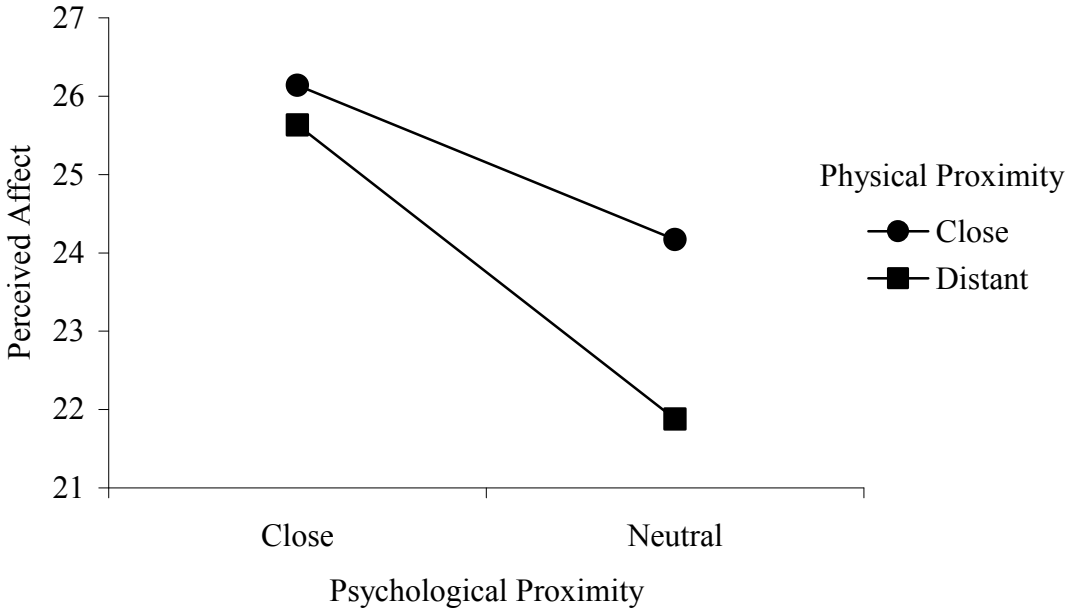
scenario was then analyzed using 2 (Psychological Proximity: Close or Neutral) by 2 (Physical Proximity: Close or Distant) ANOVAs, and the results are presented in the next page:

Analysis of Variance Results in Study 3 for Perceived Affect Measure Across Scenarios

Source	df	*F*	η^2	*p*
		College Scenario		
Physical Proximity	1	1.97	.10	.16
Psychological Proximity	1	8.29	.04	<.01
Physical Proximity x Psychological Proximity	1	.81	<.01	.37
Error	180			
		Fraternity Scenario		
Physical Proximity	1	1.65	.01	.20
Psychological Proximity	1	6.30	.03	.01
Physical Proximity x Psychological Proximity	1	<.01	<.01	.94
Error	180			
		Work Scenario		
Physical Proximity	1	4.03	.02	.05
Psychological Proximity	1	2.98	.02	.09
Physical Proximity x Psychological Proximity	1	.93	<.01	.34
Error	179			

Note. Values represent Cronbach's alpha.

College Scenario. The simple main effects for this scenario are plotted below:

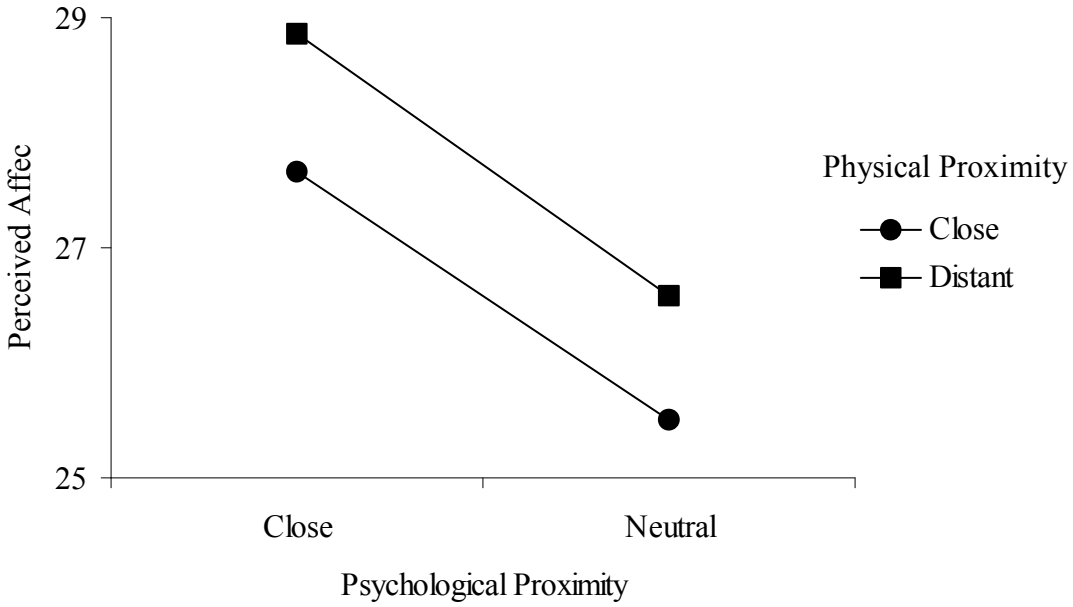


Mean perceived negative affect as a function of Manipulated Psychological Proximity and Manipulated Physical Proximity of self to other for College scenario.

The only significant effect was for Psychological Proximity, with participants reporting more positive affect when the IB was psychologically close rather than distant. An analysis of the individual effects indicated that affect did not differ as a function of physical proximity when the IB was psychologically close; however, there was marginally greater affect (p = .08) when the IB was psychologically neutral and physically close. In other words, physical proximity had no apparent influence on affect when participants were friends with the IB, but participants felt worse if the IB was physically distant and close friendship was absent. Additionally, participants' perceived affect in the close physical proximity condition did not differ based on psychological proximity. Participants in the low physical proximity condition reported significantly higher affect if the person was psychologically proximal (p = .01). Here, it appeared that the most upset group was in the psychologically

neutral and physically distant conditions, which differed significantly from all 3 other groups. The group receiving the high psychological and physical proximity conditions reported the most positive affect, although their mean significantly differed from only the psychologically and physically distal (i.e., the most upset group) group.

Fraternity Scenario. Like the College scenario, the only significant finding was that participants reported more positive affect if the IB was psychologically close. However, an analysis of the simple main effects, which are presented below, yielded a very different set of results than those found with the College scenario.

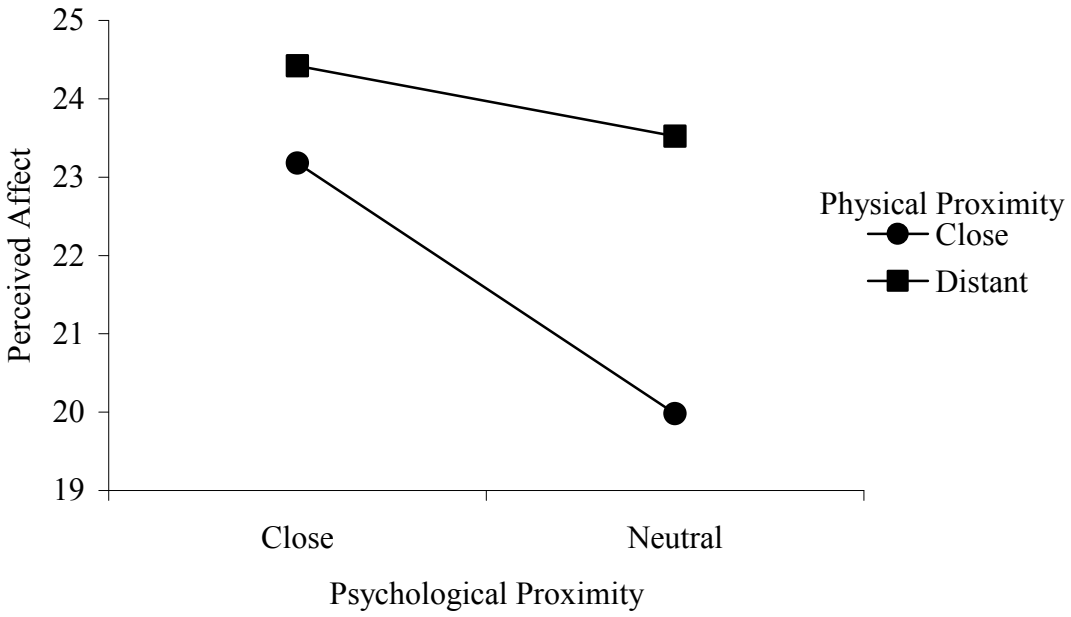


Mean perceived negative affect as a function of Manipulated Psychological Proximity and Manipulated Physical Proximity of self to other for Fraternity scenario.

Here, the psychologically close and physically distant group, or the group that was friends with but not physically close to the IB, reported the most positive affect. This group differed significantly from both the psychologically neutral conditions, but not from the other psychologically close group. The group with the lowest affect was the psychologically

neutral and physically close condition, which differed significantly from both the psychologically close conditions but not the psychologically neutral and physically distant condition.

Work Scenario. Similar to the previous scenarios, affect was marginally higher when the IB was psychologically close. However, in this scenario, participants were also significantly more upset when the IB was physically close. The simple effects, presented here, generally corresponded with those in the Fraternity scenario.



Mean perceived negative affect as a function of Manipulated Psychological Proximity and Manipulated Physical Proximity of self to other for Work scenario.

As with the fraternity scenario, the most positive affect was reported by the psychologically close and physically distant condition, which did not significantly differ with either the other psychologically close condition or the psychologically and physically distant condition. The most negative group was the psychologically neutral and physically close condition, which significantly differed from the other three conditions.

Structural Equation Models

Overview of Analyses. Several SEM models were used to predict the data, with identical models being run across scenarios. For each, the models were tested using AMOS version 5.0 (Arbuckle, 2003) and maximum likelihood estimation. As recommended by Hoyle and Panter (1995), overall model fit was assessed using the traditional χ^2 goodness-of-fit index, the Comparative Fix Index (CFI; Bentler, 1990), the Incremental Fit Index (IFI; Bollen, 1989a), the Root Mean Square Error of Approximation (RMSEA; Steiger & Lind, 1980) and its 90% confidence interval (90% CI). The χ^2 goodness-of-fit index measures the extent to which the model cannot predict the observed data, with nonsignificant values indicating no difference between the predicted and observed data, although it should be noted that large sample sizes almost invariably result in significant results. The CFI and IFI both measure the extent to which the hypothesized model predicts the data better than a model which assumes zero predictive ability. Both indices vary between 0 and 1, with higher values indicating a better fit. There are varying recommendations regarding what value indicates a close fit, with some researchers advocating .90 (Bollen, 1989b; Hoyle & Panter, 1995) and others suggesting .95 (Schumacker & Lomax, 2004). The RMSEA is another estimate of the discrepancy between the model and the data, corrected for model complexity. Values less than .05 are desired, but values between .05 and .10 are considered adequate (Browne & Cudeck, 1993).

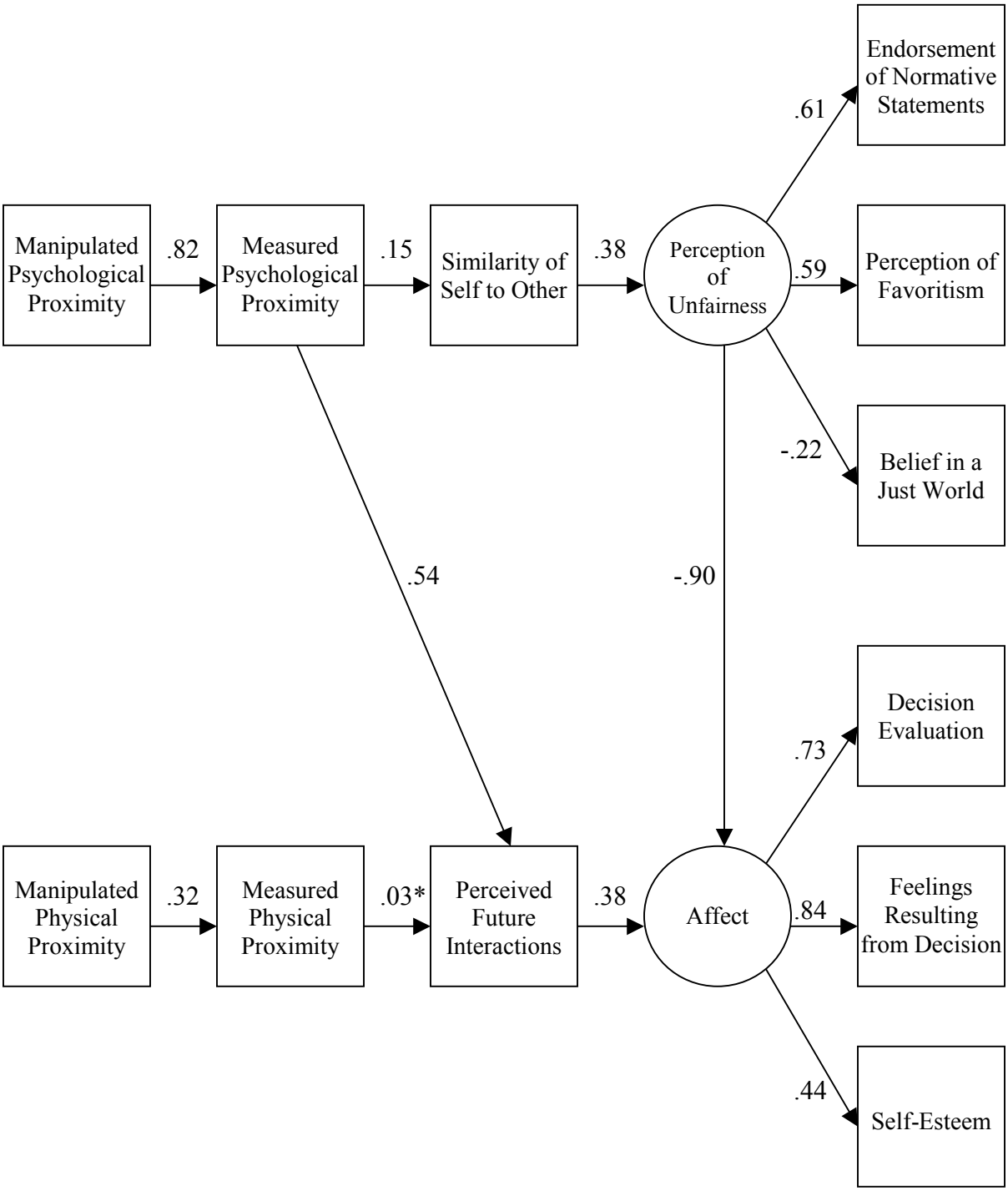
Mediational analyses were conducted in order to test the following model predictions: 1) One must perceive similarity between oneself and the IB in order for psychological proximity to predict unfairness. 2) In order for similarity to predict increased negative affect,

one must perceive unfairness. 3) One must perceive future interactions with the IB in order for either psychological or physical proximity to predict affect.

To test for mediation, bootstrapping (using 1000 samples; Shrout & Bolger, 2002) was used to derive 95% confidence intervals of total, direct, and indirect effects, and their corresponding standard errors. Here, direct effects represent the effects that are directly attributable to the predictor variable, while indirect effects are the extent to which the prediction of one variable by another is influenced by intervening variables. There is evidence that mediation is taking place when an indirect effect is significant. Four sets of mediational pathways were analyzed. One of these was the extent to which Perceived Similarity mediated the relationship between Measured Psychological Proximity and Perceived Unfairness. The second relationship of interest was the extent to which Perceived Unfairness mediated the relationship between Similarity of Self to Other and Affect. The third analysis examined if Future Interactions mediated the Measured Physical Proximity and Affect relationship. The final mediational pathway investigated if Future Interactions mediated the relationship between Measured Psychological Proximity and Affect. An analysis of the indirect effect for this final pathway could be misleading, given that it accounted for not only the desired mediational pathway of Psychological Proximity and Future Interactions, but also the pathway between Psychological Proximity, Similarity, and Perception of Unfairness. To compensate for this, a slightly modified model was analyzed in which the pathway between Manipulated Psychological Proximity and Similarity was constrained to zero, isolating the desired pathway between Psychological Proximity, Future Interactions, and Affect, and severing the unwanted mediational pathway.

For each scenario, the models were estimated as originally hypothesized in Figure 3 (for Manipulated Psychological Proximity and Manipulated Physical Proximity, these variables were dummy coded, 0 = distant/neutral, 1 = close). In both the College and Fraternity scenarios, negative error variances were initially estimated in the Affect factor, preventing the models from satisfactorily converging. To overcome this, the error variances for the Decision Evaluation and Feeling measures were allowed to correlate, and this modification was maintained across all 3 scenarios. Although these covariances were nonsignificant, this eliminated the problematic negative error variance, and a simple visual examination of the parameters indicated that this pathway modification had a minimal impact on the remaining values (P. Gagné, personal communication, July 22, 2005). After testing this slightly modified hypothesized model (which, for the sake of simplicity will herein be referred to as the hypothesized model), several exploratory analyses were conducted to test alternative models.

College Scenario. The standardized effects predicted by the model can be viewed below:

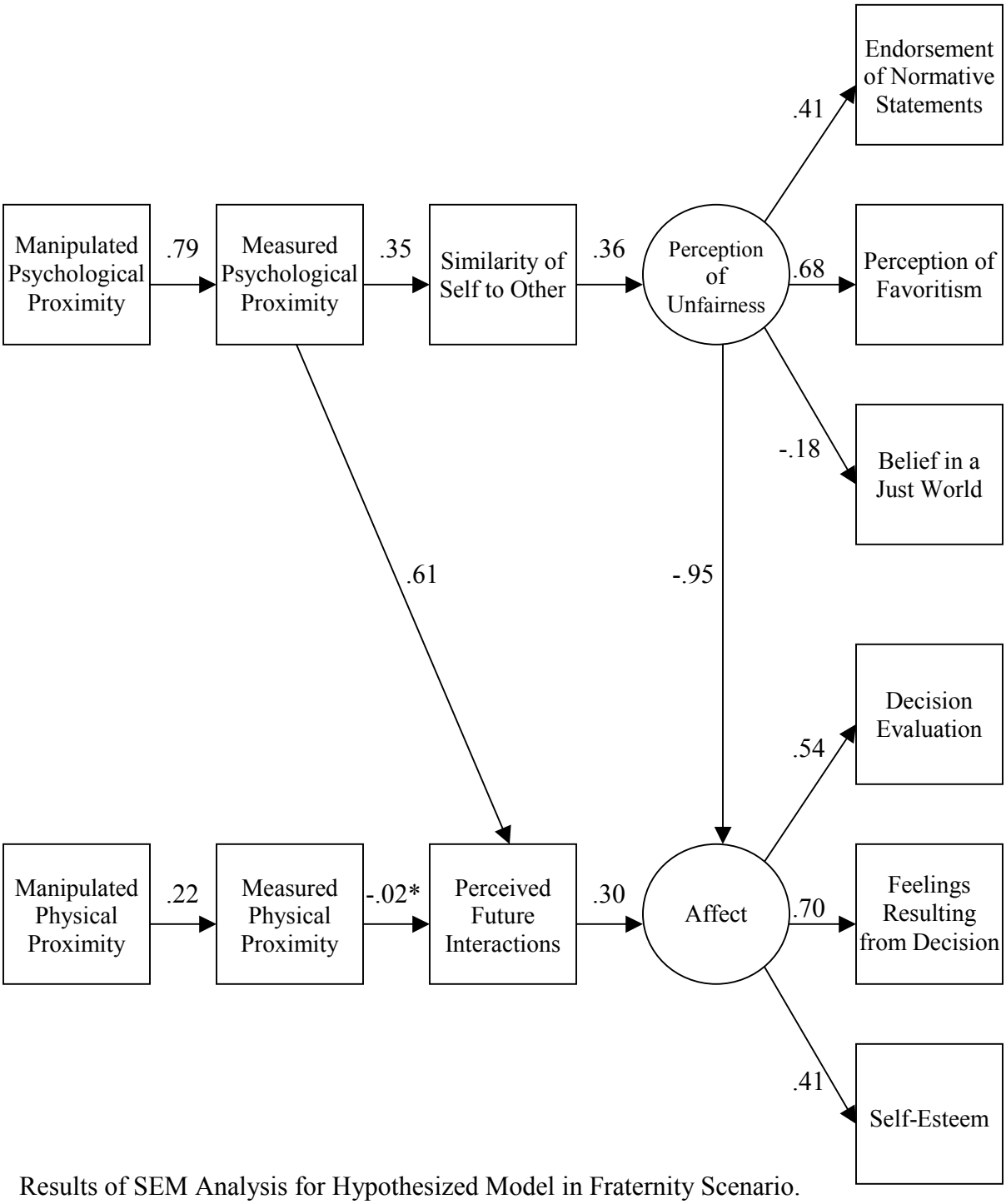


Results of SEM Analysis for Hypothesized Model in College Scenario.
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p > .05$

Model fit was marginally adequate, χ^2 (51, N = 183) = 105.85, p < .001, CFI = .91, IFI=.91, RMSEA = .08 (90% CI = .06, .10). All of the loadings were significant, with the exception of the path between Measured Physical Proximity and Anticipated Future Interactions (p = .60). These loadings were also in the hypothesized direction, with one notable exception. There was a positive loading between Anticipated Future Interactions and Affect, indicating that participants were less upset about the allocation decision when they anticipated more frequent interactions with the IB. Within the Similarity pathway, however, the relationships between variables were as hypothesized. Also as hypothesized, participants perceived more frequent future interactions with those with whom they were psychologically close.

In the mediation analyses, the indirect effect of Measured Psychological Proximity on Perceived Unfairness was significant, β = .06, p = .02, indicating that Similarity was a significant mediator. There was also evidence that Perceived Unfairness mediated the relationship between Similarity of Self to Other and Affect, β = -.34, p = .001. Finally, Future Interactions mediated the prediction of Affect by Psychological Proximity, β = .20, p = .002, but not Physical Proximity, β = .01, p = .63.

Fraternity Scenario. The standardized estimates for this scenario can be viewed below:

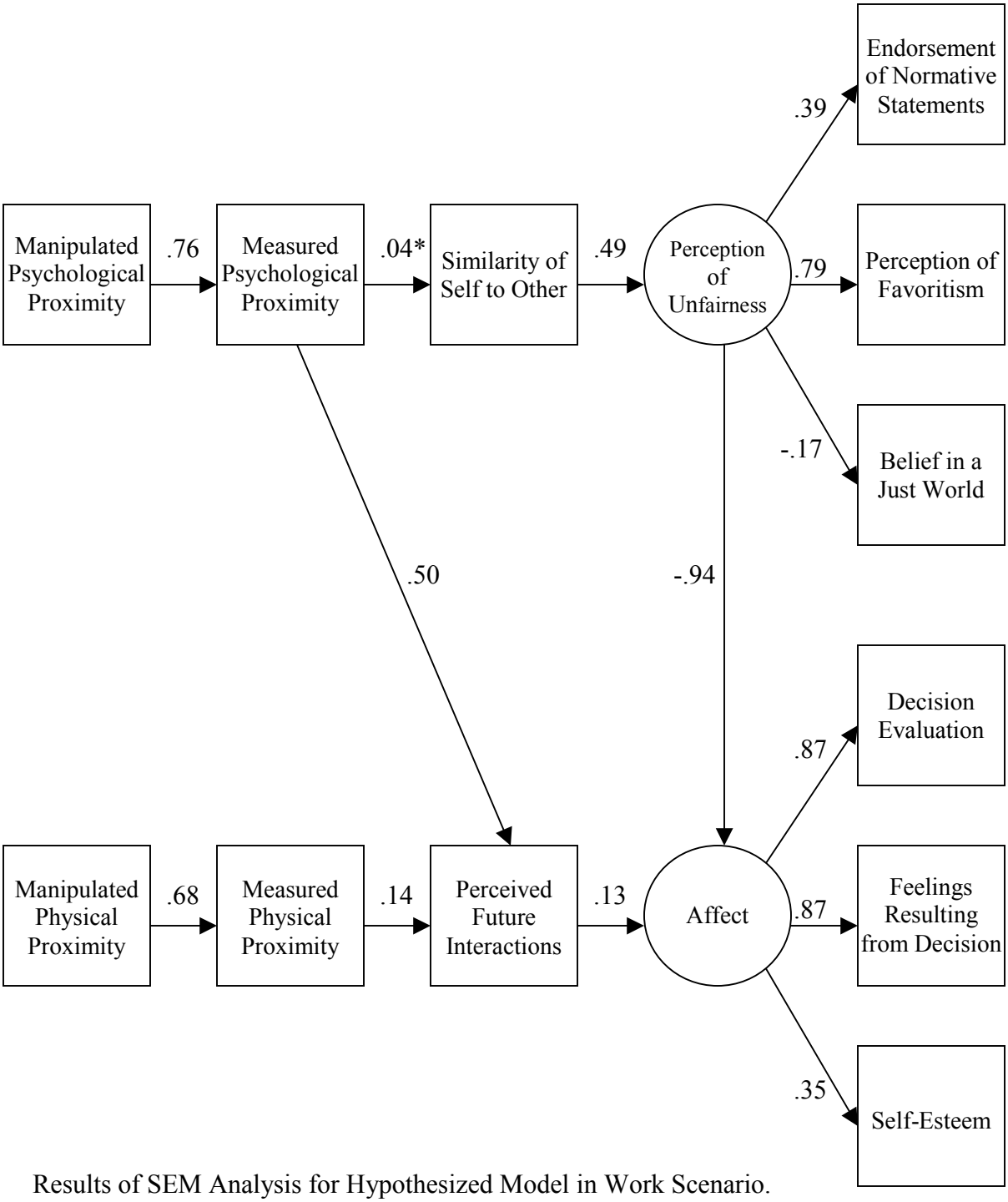


Results of SEM Analysis for Hypothesized Model in Fraternity Scenario.
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p > .05$

As can be seen, the loadings were similar in size and direction to those in the College scenario, and were as hypothesized with the exception of a nonsignificant loading between Measured Physical Proximity and Future Interactions and a positive loading between Future Interactions and Affect. However, the model fit for this scenario was not acceptable, χ^2 (51, N = 183) = 149.21, p < .001, CFI = .82, IFI=.82, RMSEA = .10 (90% CI = .08, .12).

The mediation effects for this scenario were consistent with those in the College scenario. Similarity mediated the relationship between Measured Psychological Proximity and Perceived Unfairness, β = .13, p = .001, and Fairness mediated the prediction of Affect by Similarity, β = -.34, p = .002 . Also as before, the relationship between Future Interactions and Affect was mediated by Psychological Proximity, β = .18, p = .006, but not Physical Proximity, β = -.01, p = .56.

Work Scenario. The fit for this model was similar to that for the two previous scenarios, χ^2 (51, N = 183) = 133.83, p < .001, CFI = .89, IFI=.90, RMSEA = .09 (90% CI = .08, .11). However, the loadings, which can be seen on the following page, differed somewhat from those already mentioned:



Results of SEM Analysis for Hypothesized Model in Work Scenario.
Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p > .05$

The most notable difference was that Measured Psychological Proximity no longer predicted Similarity, but Physical Proximity was now a significant predictor of Future Interactions. The strength and direction of the remaining loadings were consistent with those for the prior scenarios.

Presumably because of the significant Measured Physical Proximity predictor and the nonsignificant Psychological Proximity predictor, the mediational analyses were also somewhat different from those for previous scenarios. Here, Similarity did not mediate the relationship between Psychological Proximity and Perceptions of Unfairness, $\beta = .02$, $p = .55$, but Fairness continued to mediate the prediction of Affect by Similarity, $\beta = -.46$, $p = .001$. Also in contrast to results with previous scenarios, the prediction of Affect by Future Interactions was mediated by both Psychological Proximity, $\beta = .07$, $p = .02$, and Physical Proximity, $\beta = .02$, $p = .04$.

Exploratory Models. These analyses were undertaken to determine if psychological and physical proximity influenced mechanisms of the model in ways other than was hypothesized. In the preceding sections, it was established that Psychological Proximity also predicted Physical Proximity, so no additional models were analyzed for the former variable. For Physical Proximity, three separate models were analyzed, investigating if this variable predicted Psychological Proximity, Perceived Similarity, and/or Perceived Fairness.

Psychological Proximity was significantly predicted by Physical Proximity in the College scenario, $\beta = .16$, $p < .001$, and improved fit over the hypothesized model, $\chi^2 (1) = 14.14$, $p < .001$. As a comparison, this is somewhat less than the extent to which Psychological Proximity predicted Physical Proximity ($\beta = .20$). Physical Proximity was not a significant predictor of Similarity, $\beta = -.01$, $p = .63$, showing no improvement in fit over the

hypothesized model, χ^2 (1) = .01, p =.92. Physical Proximity did predict Perceptions of Fairness, however, β = -.18, p = .03, and improved model fit, χ^2 (1) = 5.14, p =.02.

Physical Proximity significantly predicted Psychological Proximity in the Fraternity scenario, β = .26, p < .001, and improved the fit of the model, χ^2 (1) = 30.74, p < .001. This was, however, considerably smaller than the prediction of Physical Proximity by Psychological Proximity (β = .43). Physical Proximity did not significantly predict either Similarity, β = .06, p = .39, or Perception of Fairness, β = -.10, p = .22, nor did it improve the model fit of either model, for the former, χ^2 (1) = .59, p =.44, for the latter, χ^2 (1) = 1.39, p =.24.

Physical Proximity was a marginally significant predictor of Psychological Proximity for the Work scenario, β = .08, p = .10, but once again a considerably smaller effect than the prediction of Physical Proximity by Psychological Proximity (β = .18). This model fit somewhat better than the hypothesized model, χ^2 (1) = 2.77, p =.10. The addition of a link between Measured Physical Proximity and Similarity led to marginal significance, β = .14, p = .06, and marginally improved model fit, χ^2 (1) = 3.37, p =.07, but adding a link between Physical Proximity and Perceived Fairness was clearly nonsignificant, β = .09, p = .21, and did not improve model fit, χ^2 (1) = 1.63, p =.20.

Appendix D: New Scenario Presentation to Participants in Study 4

College: Physically Close, Psychologically Close

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a close friend. To you, it is not entirely clear why you were denied admission while your friend was accepted. You both have a very similar GPA, SAT scores, and extracurricular activities, and you're both of similar demographics (sex, race, household income, etc.).

College: Physically Close, Psychologically Neutral

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. To you, it is not entirely clear why you were denied admission while this other student was accepted. You both have a very similar GPA, SAT scores, and extracurricular activities, and you're both of similar demographics (sex, race, household income, etc.).

College: Physically Distant, Psychologically Close

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student who attends a high school on the other side of town *was accepted* to this same university. You consider this person to be a close friend, even though you are at different schools. To you, it is not entirely clear why you were denied admission while your friend was accepted. You both have a very similar GPA, SAT scores, and extracurricular activities, you're both of similar demographics (sex, race, household income, etc.), and you both attend high schools of similar quality.

College: Physically Distant, Psychologically Neutral

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student who attends a high school on the other side of town *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. To you, it is not entirely clear why you were denied admission while this other student was accepted. You both have a very similar GPA, SAT scores, and extracurricular activities, you're both of similar demographics (sex, race, household income, etc.), and you both attend high schools of similar quality.

Fraternity: Physically Close, Psychologically Close

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of another member of your own fraternity whose application was accepted. This is someone you consider a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), and have comparable academic and service achievements.

Fraternity: Physically Close, Psychologically Neutral

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of another member of your own fraternity whose application was accepted. This is someone you would describe as a casual acquaintance, not a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), and have comparable academic and service achievements.

Fraternity: Physically Distant, Psychologically Close

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of a member of another UNC fraternity whose application was accepted. This is someone you consider a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), and have comparable academic and service achievements.

Fraternity: Physically Distant, Psychologically Neutral

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of a member of another UNC fraternity whose application was accepted. This is someone you would describe as a casual acquaintance, not a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), and have comparable academic and service achievements.

Work: Physically Close, Psychologically Close

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee in an adjoining cubicle received a $2000 bonus. This other employee is someone you consider to be a very good friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. In addition, your work performance and that of your friend has been rated as pretty much the same over the past five years - including this past year.

Work: Physically Close, Psychologically Neutral

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee in an adjoining cubicle received a $2000 bonus. This other employee is someone you know casually but wouldn't really consider a close friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. In addition, your work performance and that of your friend has been rated as pretty much the same over the past five years - including this past year.

Work: Physically Distant, Psychologically Close

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee who works in another one of your company's offices across town and does pretty much the same work, received a $2000 bonus. This other employee is someone you consider to be a very good friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. In addition, your work performance and that of your friend has been rated as pretty much the same over the past five years - including this past year.

Work: Physically Distant, Psychologically Neutral

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee who works in another one of your company's offices across town and does pretty much the same work, received a $2000 bonus. This other employee is someone you know casually but wouldn't really consider a close friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. In addition, your work performance and that of your friend has been rated as pretty much the same over the past five years - including this past year.

Job: Physically Close, Psychologically Close

Imagine that it's your senior year of college, and you're trying to land a marketing job that will begin after graduation. You're really hoping to get a job from a particular company that's based out of your hometown and offers great pay and benefits. When this company arrives on campus to recruit upcoming UNC graduates, you make sure to schedule an interview. A couple of weeks after the interview, you learn that you will not be offered a job, however, you learn of another student who lives next door to you who was offered a marketing position at this company. This is someone you consider to be a close friend. It's not entirely clear why this other student was offered a job and you were not. You have similar GPAs, resumes, and other qualifications, and you're both of similar demographics.

Job: Physically Close, Psychologically Neutral

Imagine that it's your senior year of college, and you're trying to land a marketing job that will begin after graduation. You're really hoping to get a job from a particular company that's based out of your hometown and offers great pay and benefits. When this company arrives on campus to recruit upcoming UNC graduates, you make sure to schedule an interview. A couple of weeks after the interview, you learn that you will not be offered a job, however, you learn of another student who lives next door to you who was offered a marketing position at this company. This is someone you consider a casual acquaintance, not a close friend. It's not entirely clear why this other student was offered a job and you were not. You have similar GPAs, resumes, and other qualifications, and you're both of similar demographics.

Job: Physically Distant, Psychologically Close

Imagine that it's your senior year of college, and you're trying to land a marketing job that will begin after graduation. You're really hoping to get a job from a particular company that's based out of your hometown and offers great pay and benefits. When this company arrives on campus to recruit upcoming UNC graduates, you make sure to schedule an interview. A couple of weeks after the interview, you learn that you will not be offered a job, however, you learn of another student who lives across town from you who was offered a marketing position at this company. This is someone you consider to be a close friend. It's not entirely clear why this other student was offered a job and you were not. You have similar GPAs, resumes, and other qualifications, and you're both of similar demographics.

Job: Physically Distant, Psychologically Neutral

Imagine that it's your senior year of college, and you're trying to land a marketing job that will begin after graduation. You're really hoping to get a job from a particular company that's based out of your hometown and offers great pay and benefits. When this company arrives on campus to recruit upcoming UNC graduates, you make sure to schedule an interview. A couple of weeks after the interview, you learn that you will not be offered a job, however, you learn of another student who lives across town from you who was offered a marketing position at this company. This is someone you consider a casual acquaintance, not a close friend. It's not entirely clear why this other student was offered a job and you were not. You have similar GPAs, resumes, and other qualifications, and you're both of similar demographics.

Appendix E: Questions Presented Following College Scenario in Study 4

Perceived Psychological Proximity

I am friends with the student who was admitted into the university.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

How emotionally close are you to the student who was admitted into the university?

1	2	3	4	5	6	7
Extremely Distant			Neither Close nor Distant			Extremely Close

Perceived Physical Proximity

I live near the student who was admitted into the university

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I would describe the physical distance between where I live and where the student who was admitted into the university lives as

1	2	3	4	5	6	7
Extremely Distant			Neither Close nor Distant			Extremely Close

Perceived Present Interactions based on Psychological Proximity

Based on the amount of emotional closeness between myself and the student who was admitted into the university, I probably would have seen this person:

1	2	3	4	5	6	7
Very Rarely						Very Frequently

Perceived Present Interactions based on Physical Proximity

Given where the student who was admitted into the university lives, I probably would have seen this person:

1	2	3	4	5	6	7
Very Rarely						Very Frequently

Perception of Similarity

I and the student who was admitted into the university were equally qualified to be accepted into that school.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

My academic record is similar to that of the student who was admitted into the university.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I would describe myself and the student who was admitted into the university as

1	2	3	4	5	6	7
Extremely Dissimilar			Neither Similar nor Dissimilar			Extremely Similar

Anticipated Future Interactions

Within the next couple of months, I expect to see the student who was admitted into the university on a frequent basis.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Between now and high school graduation, I probably won't interact with the student who was admitted into the university very often.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Between now and high school graduation, I will probably run into the student who was admitted into the university…

1	2	3	4	5	6	7
Very Rarely						Very Frequently

Perceived Reminders (i.e., running into the IB will remind me of my failure to receive the resource)

I expect _____ instances in which the student who was admitted into the university might unintentionally do something to remind me that I was not offered admission.

1	2	3	4	5	6	7
Very Few						Very Many

I will probably avoid running into the student who was admitted into the university so as not to be reminded of my failure to gain admission.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I wouldn't be surprised if the student who was admitted into the university might intentionally do something to remind me that I was not offered admission.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Effect of Reminders

Merely seeing or running into the student who was accepted for admission into the university will make me feel _____ about my failure to be granted admission.

1	2	3	4	5	6	7
Much Better			Neither Better nor Worse			Much Worse

Please tell us *why* you responded the way you did on the previous two questions (i.e., Why does this make you feel better or worse?):

Decision Evaluation

The decision to reward a scholarship to this other student is:

1	2	3	4	5	6	7
Not at all Objectionable						Extremely Objectionable

1	2	3	4	5	6	7
Not at all Unreasonable						Extremely Unreasonable

1	2	3	4	5	6	7
Not at all Narrow-Minded						Extremely Narrow-Minded

1	2	3	4	5	6	7
Not at all Terrible						Extremely Terrible

1	2	3	4	5	6	7
Not at all Unacceptable						Extremely Unacceptable

Feelings

The decision to reject my application for admission into the university makes me feel the following:

1	2	3	4	5	6	7
Not at all Angry						Extremely Angry

1	2	3	4	5	6	7
Not at all Negative						Extremely Negative

1	2	3	4	5	6	7
Not at all Upset						Extremely Upset

1	2	3	4	5	6	7
Not at all Rejected						Extremely Rejected

Please tell us *why* you responded the way you did on the previous four questions (i.e., Why does this make you feel angry, upset, etc.?):

Self-Esteem

The decision to reject my application for admission into the university makes me feel the following:

I am a person of worth.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I have a number of good qualities.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I am a failure.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I am able to do things as well as most other people.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I do not have much to be proud of.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I take a positive attitude toward myself.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I am satisfied with myself.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I wish I could have more respect for myself.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I am no good at all.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Endorsement of Equity Norms

Universities should make sure that equally qualified applicants are evaluated similarly.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Equal people deserve equal treatment.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Belief in a Just World

The decision to reject my application for admission into the university makes me feel the following:

I feel that the world usually treats people fairly.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I feel that people usually get what they deserve.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I feel that people usually earn the rewards and punishments they get.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I feel that people usually get what they are entitled to have.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I feel that a person's efforts are usually noticed and rewarded.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I feel that when people meet with misfortune, they have usually brought it upon themselves.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Perceived Favoritism

It seems like this student is favored over me.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

There's probably a good reason why this student was accepted for admission and I wasn't.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

The decision to grant this student admission to the university is:

1	2	3	4	5	6	7
Not at all Unfair						Extremely Unfair

Deservingness

I deserve to be admitted into the university just as much as the student who granted admission

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

All in all, it seems like if this student was accepted for admission, than I should be too.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

The student who was accepted into the university deserved to gain admission more than I did.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Relative Deprivation

Being denied admission to the university would not seem as bad if I didn't know that this student was offered admission.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Finding out that this other student was accepted for admission into the university makes my failure to receive admission feel even worse.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Finding out that this student was accepted for admission into the university makes me feel _____ about my failure to be granted admission.

1	2	3	4	5	6	7
Much Better			Neither Better nor Worse			Much Worse

Please tell us *why* you responded the way you did on the previous 3 questions (i.e., Why does this make you feel better or worse?):

Social Comparison

In the past, when I've looked at things I've had or received, I've probably at least noticed what the student who was admitted into the university also received.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

In the future, when I looked at things I've had or received, I'll probably at least think about what the student who was admitted into the university also received

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Control

The decision to reject my application for admission into the university makes me feel that:

No matter how good you are and no matter how hard you try, you just can't control what happens to you.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Other people determine what happens to us in life more than we do.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

When I really want something, I can pretty much achieve it

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Extent to which the allocation makes oneself and the IB seem different from one another:

The decision to admit this student into the university will make it _____ for me to continue my relationship with this person.

1	2	3	4	5	6	7
Much More Difficult			Neither Easier nor Difficult			Much Easier

Evaluation of IB:

My opinion of this student has become _____ because of the decision to admit him/her into the university

1	2	3	4	5	6	7
Much more Negative			Neither more Positive nor more Negative			Much more Positive

Even though I know it's irrational, I feel like this student stabbed me in the back by receiving admission to the university.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

This student purposefully tried to get into the university to show that s/he's better than me.

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

This student probably did something unfair (like cheating or kissing up to the admissions board) in order to get admission to the university

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

I expect there will be _____ instances in which I will have to pretend to be happy that this student was admitted into the university.

1	2	3	4	5	6	7
Very Few						Very Many

Appendix F: Scenarios Presented to Participants in Study 5

College: Physically Close, Psychologically Close, Equally Qualified as IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox and, much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a close friend. To you, it is not entirely clear why you were denied admission while your friend was accepted. You're both of similar demographics (sex, race, household income, etc.), and you both have a very similar GPA, SAT scores, and extracurricular activities.

College: Physically Close, Psychologically Close, Less Qualified than IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox and, much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a close friend. To you, it is not entirely clear why you were denied admission while your friend was accepted. You're both of similar demographics (sex, race, household income, etc.), although you do have an inferior GPA, SAT scores, and extracurricular activities in comparison to your friend.

College: Physically Close, Psychologically Neutral, Equally Qualified as IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. To you, it is not entirely clear why you were denied admission while this other student was accepted. You're both of similar demographics (sex, race, household income, etc.), and you both have a very similar GPA, SAT scores, and extracurricular activities.

College: Physically Close, Psychologically Neutral, Less Qualified than IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. To you, it is not entirely clear why you were denied admission while this other student was accepted. You're both of similar demographics (sex, race, household income, etc.), although you do have an inferior GPA, SAT scores, and extracurricular activities in comparison to your friend.

College: Physically Distant, Psychologically Close, Equally Qualified as IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student who attends a high school on the other side of town *was accepted* to this same university. You consider this person to be a close friend, even though you are at different schools. To you, it is not entirely clear why you were denied admission while your friend was accepted. You're both of similar demographics (sex, race, household income, etc.), and you both have a very similar GPA, SAT scores, and extracurricular activities.

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College: Physically Distant, Psychologically Neutral, Equally Qualified as IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student who attends a high school on the other side of town *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. To you, it is not entirely clear why you were denied admission while this other student was accepted. You're both of similar demographics (sex, race, household income, etc.), and you both have a very similar GPA, SAT scores, and extracurricular activities.

College: Physically Distant, Psychologically Neutral, Less Qualified than IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student who attends a high school on the other side of town *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. To you, it is not entirely clear why you were denied admission while this other student was accepted. You're both of similar demographics (sex, race, household income, etc.), although you do have an inferior GPA, SAT scores, and extracurricular activities in comparison to your friend.

Fraternity: Physically Close, Psychologically Close, Equally Qualified as IB

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity who meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of another member of your own fraternity whose application was accepted. This is someone you consider a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), and have comparable academic and service achievements.

Fraternity: Physically Close, Psychologically Close, Less Qualified than IB

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity who meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of another member of your own fraternity whose application was accepted. This is someone you consider a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), although you do have inferior academic and service achievements.

Fraternity: Physically Close, Psychologically Neutral, Equally Qualified as IB

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of another member of your own fraternity whose application was accepted. This is someone you would describe as a casual acquaintance, not a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), and have comparable academic and service achievements.

Fraternity: Physically Close, Psychologically Neutral, Less Qualified than IB

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of another member of your own fraternity whose application was accepted. This is someone you would describe as a casual acquaintance, not a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), although you do have inferior academic and service achievements.

Fraternity: Physically Distant, Psychologically Close, Equally Qualified as IB

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of a member of another UNC fraternity whose application was accepted. This is someone you consider a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), and have comparable academic and service achievements.

Fraternity: Physically Distant, Psychologically Close, Less Qualified than IB

Imagine that you apply for a $5000 scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of a member of another UNC fraternity whose application was accepted. This is someone you consider a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), although you do have inferior academic and service achievements.

Fraternity: Physically Distant, Psychologically Neutral, Equally Qualified as IB

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Work: Physically Close, Psychologically Close, Equally Qualified as IB

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee in an adjoining cubicle received a $2000 bonus. This other employee is someone you consider to be a very good friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. In addition, your work performance has been rated consistently equal to your friend's during the past five years - including this past year.

Work: Physically Close, Psychologically Close, Less Qualified than IB

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee in an adjoining cubicle received a $2000 bonus. This other employee is someone you consider to be a very good friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. But, your work performance has been rated consistently lower than your friend's during the past five years - including this past year.

Work: Physically Close, Psychologically Neutral, Equally Qualified as IB

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee in an adjoining cubicle received a $2000 bonus. This other employee is someone you know casually but wouldn't really consider a close friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. . In addition, your work performance has been rated consistently equal to your friend's during the past five years - including this past year.

Work: Physically Close, Psychologically Neutral, Less Qualified than IB

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Work: Physically Distant, Psychologically Close, Equally Qualified as IB

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Work: Physically Distant, Psychologically Close, Less Qualified than IB

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee who works in another one of your company's offices across town and does pretty much the same work, received a $2000 bonus. This other employee is someone you consider to be a very good friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. But, your work performance has been rated consistently lower than your friend's during the past five years - including this past year.

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Job: Physically Close, Psychologically Close, Equally Qualified as IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox and, much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a close friend. To you, it is not entirely clear why you were denied admission while your friend was accepted. You're both of similar demographics (sex, race, household income, etc.), and you have a very similar GPA, SAT scores, and extracurricular activities in comparison to this person.

Job: Physically Close, Psychologically Close, Less Qualified than IB

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Job: Physically Close, Psychologically Neutral, Equally Qualified as IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. To you, it is not entirely clear why you were denied admission while this other student was accepted. You're both of similar demographics (sex, race, household income, etc.), and you have a very similar GPA, SAT scores, and extracurricular activities in comparison to this person.

Job: Physically Close, Psychologically Neutral, Less Qualified than IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. To you, it is not entirely clear why you were denied admission while this other student was accepted. You're both of similar demographics (sex, race, household income, etc.), although you do have an inferior GPA, SAT scores, and extracurricular activities in comparison to this person.

Job: Physically Distant, Psychologically Close, Equally Qualified as IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student who attends a high school on the other side of town *was accepted* to this same university. You consider this person to be a close friend, even though you are at different schools. To you, it is not entirely clear why you were denied admission while your friend was accepted. You're both of similar demographics (sex, race, household income, etc.), and you have a very similar GPA, SAT scores, and extracurricular activities in comparison to this person.

Job: Physically Distant, Psychologically Close, Less Qualified than IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student who attends a high school on the other side of town *was accepted* to this same university. You consider this person to be a close friend, even though you are at different schools. To you, it is not entirely clear why you were denied admission while your friend was accepted. You're both of similar demographics (sex, race, household income, etc.), although you do have an inferior GPA, SAT scores, and extracurricular activities in comparison to this person.

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Job: Physically Distant, Psychologically Neutral, Less Qualified than IB

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student who attends a high school on the other side of town *was accepted* to this same university. You consider this person to be a casual acquaintance, not a close friend. You're both of similar demographics (sex, race, household income, etc.), although you do have an inferior GPA, SAT scores, and extracurricular activities in comparison to this person.

Appendix G: Scenarios Presented to Participants in Study 6

College: Physically Close, Psychologically Close, Frequent Present Interactions

Imagine that it's your senior year of high school, and you're eagerly awaiting a decision on admission to your most desired college, one that you absolutely have your heart set on attending. Eventually, a letter from that university appears in your mailbox, and much to your disappointment, you are notified that you were *not accepted* for admission. Several days later, you're told that another student in your high school *was accepted* to this same university. You consider this person to be a close friend, and someone you frequently run into. To you, it is not entirely clear why you were denied admission while your friend was accepted. You both have a very similar GPA, SAT scores, and extracurricular activities, and you're both of similar demographics (sex, race, household income, etc.).

College: Physically Close, Psychologically Close, Infrequent Present Interactions

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Work: Physically Close, Psychologically Close, Frequent Present Interactions

Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing an annual bonus of up to $2000 to each of her subordinates based on the quality of his/her performance. For each of the past 5 years, your boss has elected to reward a $1500 bonus to all of her employees. This year, however, you received a bonus of only $1200, although you learned that a fellow employee in an adjoining cubicle received a $2000 bonus. This other employee is someone you consider to be a very good friend, and your work schedules cause you to see each other frequently. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. In addition, your work performance and that of your friend has been rated as pretty much the same over the past five years - including this past year

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Imagine that it's your senior year of college, and you're trying to land a marketing job that will begin after graduation. You're really hoping to get a job from a particular company that's based out of your hometown and offers great pay and benefits. When this company arrives on campus to recruit upcoming UNC graduates, you make sure to schedule an interview. A couple of weeks after the interview, you learn that you will not be offered a job, however, you learn of another student who lives next door to you who was offered a marketing position at this company. This is someone you consider to be a close friend, and someone you run into on a daily basis. It's not entirely clear why this other student was offered a job and you were not. You have similar GPAs, resumes, and other qualifications, and you're both of similar demographics.

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Appendix H: Study 7

Method

One-hundred and twenty-six (UNC-CH students participated in this study in exchange for participant pool credit. This study mimicked the methodology of that in Study 5, but with the manipulation of Resource Exclusivity rather than Similarity in Qualification, resulting in a 2 (Psychological Proximity: Close or Neutral) by 2 (Physical Proximity: Close or Distant) by 2 (Resource Exclusivity: Exclusive or Non-Exclusive) between-subjects design. Another difference was the elimination of the College scenario, as it seemed implausible to construct a manipulation in which university admission was granted to a single individual. The proposed manipulations are presented in the following pages:

Fraternity: Physically Close, Psychologically Close, Non-exclusive Resource

Imagine that you apply for scholarship that is available to members of a social fraternity that meet predetermined standards of academic and service excellence. Five winners will be selected from UNC, and each will receive $5000. Several months later, you learn that your application for the scholarship has been denied. Several days later, you learn of another member of your own fraternity whose application was accepted. This is someone you consider a close friend. It's not entirely clear why this person was deemed worthy of a scholarship while you were not. You're both of similar age and demographics (White middle-class males), and have comparable academic and service achievements.

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Imagine that you have had a "desk job" with a local telecommunications company for the past 5 years. Once a year, your supervisor is given the option of distributing a special $1000 bonus to a single subordinate based on the quality of his/her performance. This year, you are not selected to receive this bonus, but instead you learn that a fellow employee in an adjoining cubicle is a recipient. This other employee is someone you know casually but wouldn't really consider a close friend. You and this other employee are of similar age and education, and you have both worked for the company for about 5 years. In addition, your work performance and that of your friend has been rated as pretty much the same over the past five years - including this past year.

Work: Physically Distant, Psychologically Close, Non-exclusive Resource

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Imagine that it's your senior year of college, and you're trying to land a marketing job that will begin after graduation. You're really hoping to get a job from a particular company that's based out of your hometown and offers great pay and benefits. When this company arrives on campus to recruit upcoming UNC graduates, you make sure to schedule an interview. At the interview, you learn that this company intends to hire about 10 upcoming graduates from UNC. A couple of weeks after the interview, you learn that you will not be offered a job, however, you learn of another student who lives next door to you who was offered a marketing position at this company. This is someone you consider to be a close friend. It's not entirely clear why this other student was offered a job and you were not. You have similar GPAs, resumes, and other qualifications, and you're both of similar demographics.

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Removing the College scenario necessitated the use of a slightly different counterbalancing scheme from that in the two previous studies. Participants were exposed to 3 out of the 4 possible manipulation combinations involving Physical and Psychological Proximity, and these combinations were fully counterbalanced. The different scenarios were partially counterbalanced into one of 3 possible presentation orders (Fraternity, Work Job; Work, Job, Fraternity; or Job, Fraternity, Work). The Exclusivity manipulation was presented in one of two possible orders (Exclusive, Non-Exclusive, Exclusive; or Non-Exclusive, Exclusive, Non-Exclusive). An additional manipulation check was also added to verify the effectiveness of this manipulation, in which participants used a 7-point response

scale to indicate the number of individuals that were able to receive the desired resource (e.g., "This company intended to hire many UNC graduates.").

Results

Measure reliability. Reliability was similar to that in previous studies. The only instances where desirable values were not obtained was the favoritism measure in the Fraternity ($\alpha = .65$) and Job ($\alpha = .67$) scenarios, and the deservingness measure in the Job scenario ($\alpha = .65$).

Manipulation checks. The design of this study did not allow the use of within-subjects analyses for the manipulation checks. Instead, separate MANOVAS were conducted for each scenario, with manipulated psychological proximity, manipulated physical proximity, gender, and resource exclusivity as the independent variables and measured psychological proximity, measured physical proximity, frequency of present interactions based on physical proximity, frequency of present interactions based on psychological proximity, perceived future interactions, perceived reminders and perceived similarity of self to IB serving as dependent variables. Because no consistent main effects or interactions involving gender or resource exclusivity were obtained, these analyses were conducted again without these two independent variables.

In the fraternity scenario, measured psychological proximity (for close, $M = 12.27$, for neutral, $M = 7.27$), F (1, 122) = 217.37, $p < .001$, present interactions due to psychological proximity (for close, $M = 12.27$, for neutral, $M = 7.27$), F (1, 122) = 101.89, $p < .001$, and perceived future interactions (for close, $M = 16.50$, for neutral, $M = 13.08$), F (1, 122) = 43.94, $p < .001$, all differed as expected according to manipulated psychological proximity. Significant differences were not found for either similarity, F (1, 122) = 1.31, $p =$

.25, or perceived reminders, F (1, 122) = 2.27, p = .13, although the means were in the predicted direction. For manipulated physical proximity, differences were as expected for measured physical proximity (for close, M = 10.98, for neutral, M = 8.98), F (1, 122) = 24.95, p < .001, present interactions due to physical proximity (for close, M = 5.44, for distant, M = 4.35), F (1, 122) = 21.50, p < .001, future interactions (for close, M = 16.67, for distant, M = 12.97), F (1, 122) = 43.94, p < .001, and perceived reminders (for close, M = 19.80, for distant, M = 17.83), F (1, 122) = 3.25, p = .07.

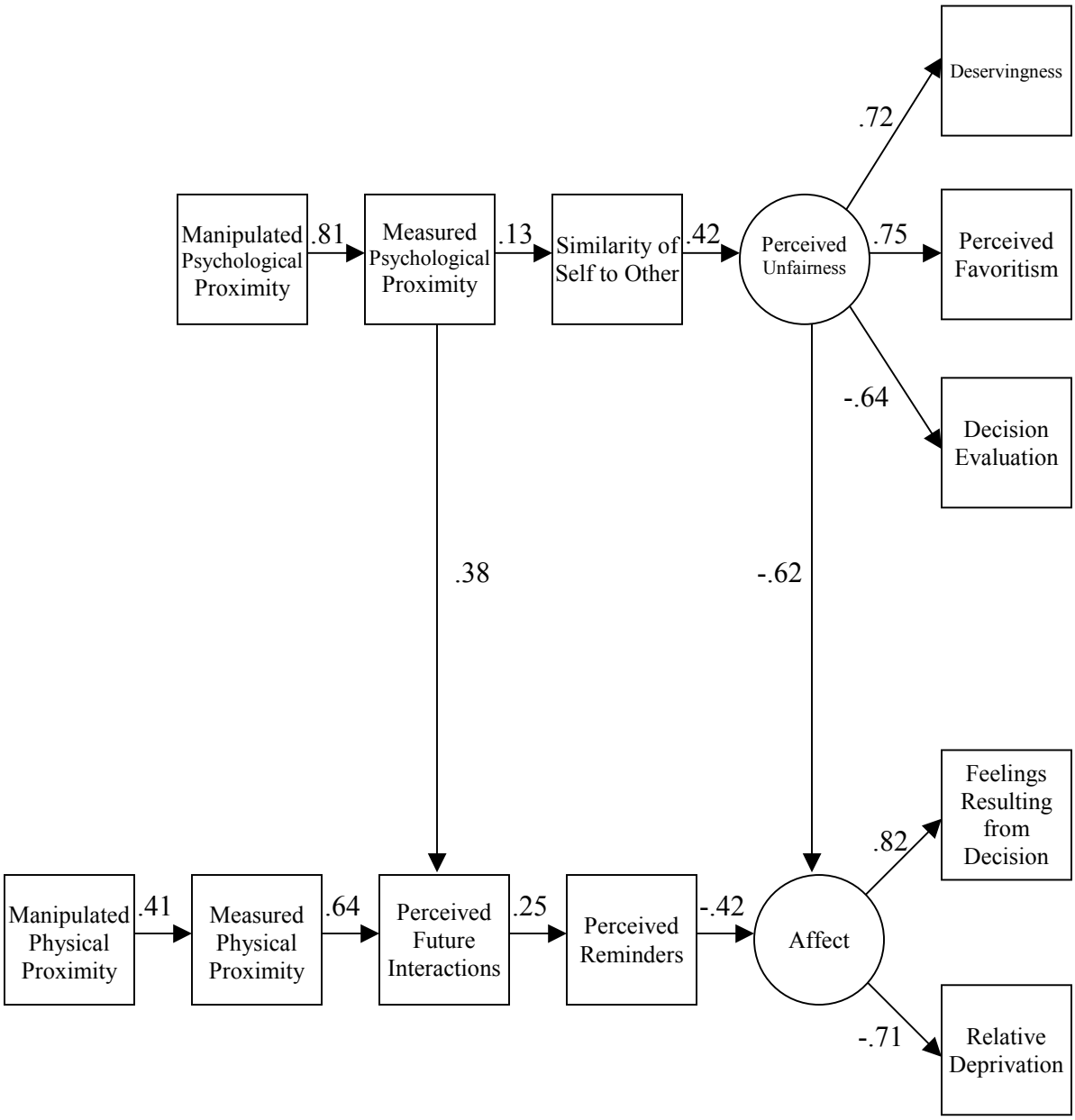
Similar results occurred in the Work scenario. While measured psychological proximity (for close, M = 12.63, for neutral, M = 7.08), F (1, 122) = 411.06, p < .001, present interactions due to psychological proximity (for close, M = 6.15, for neutral, M = 3.28), F (1, 122) = 136.15, p < .001, and perceived future interactions (for close, M = 16.95, for neutral, M = 14.02), F (1, 122) = 26.70, p < .001, all differed as expected, significant differences were not found for either similarity, F (1, 122) = 1.21, p = .27, or perceived reminders, F (1, 122) = .07, p = .80. In the manipulated physical proximity variable, differences were as expected for measured physical proximity (for close, M = 13.11, for distant, M = 7.08), F (1, 122) = 195.09, p < .001, present interactions due to physical proximity (for close, M = 6.63, for distant, M = 3.74), F (1, 122) = 150.51, p < .001, perceived future interactions (for close, M = 19.83, for distant, M = 10.80), F (1, 122) = 244.33, p < .001, and perceived reminders (for close, M = 20.45, for distant, M = 15.21), F (1, 122) = 25.97, p < .001.

In the Job scenario, measured psychological proximity all differed as expected based on measured psychological proximity (for close, M = 12.31, for neutral, M = 6.50), F (1, 122) = 292.39, p < .001, present interactions due to psychological proximity (for close, M = 5.89, for neutral, M = 3.19), F (1, 122) = 150.04, p < .001, similarity (for close, M = 19.11, for

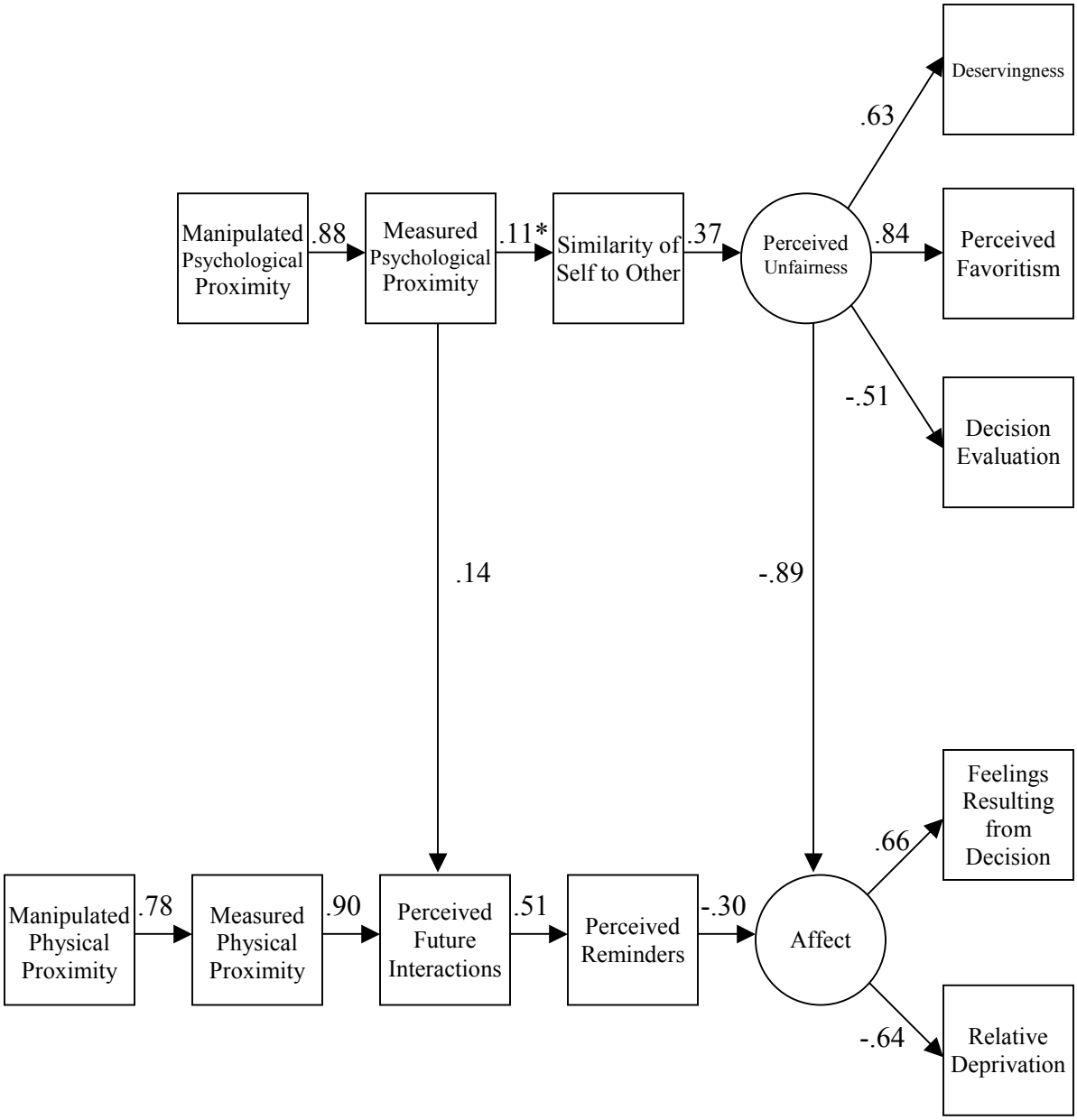
neutral, $M = 18.45$), F (1, 122) = 2.79, $p = .10$, and perceived future interactions (for close, $M = 15.34$, for neutral, $M = 13.66$), F (1, 122) = 5.78, $p = .02$. As with the prior scenarios, there were no significant differences in perceived reminders (for close, $M = 15.34$, for neutral, $M = 13.66$), F (1, 122) = .07, $p = .79$. Differences were as expected as a function of manipulated physical proximity for measured physical proximity (for close, $M = 13.31$, for distant, $M = 8.10$), F (1, 122) = 143.09, $p < .001$, present interactions due to physical proximity (for close, $M = 6.47$, for distant, $M = 3.73$), F (1, 122) = 155.00, $p < .001$, perceived future interactions (for close, $M = 17.97$, for distant, $M = 10.89$), F (1, 122) = 113.42, $p < .001$, and perceived reminders (for close, $M = 21.11$, for distant, $M = 18.16$), F (1, 122) = 6.89, $p = .01$.

The manipulation check for exclusivity was also analyzed using an AVOVA with exclusivity, psychological proximity, physical proximity, and gender as independent variables. There were no significant main effects or interactions involving these latter three variables. The variable was recognized as more exclusive when according to the manipulation in all three scenarios, for Fraternity, F (1, 127) = 261.33, $p < .001$, for Work, F (1, 127) = 57.18, $p < .001$, for Job, F (1, 127) = 285.33, $p < .001$.

Structural equation models. The hypothesized model was first analyzed separately for each scenario, without regard to the exclusivity manipulation. The resulting path diagrams are presented in the upcoming pages for the Fraternity, Work, and Job scenarios, respectively:



Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.
* $p = .21$



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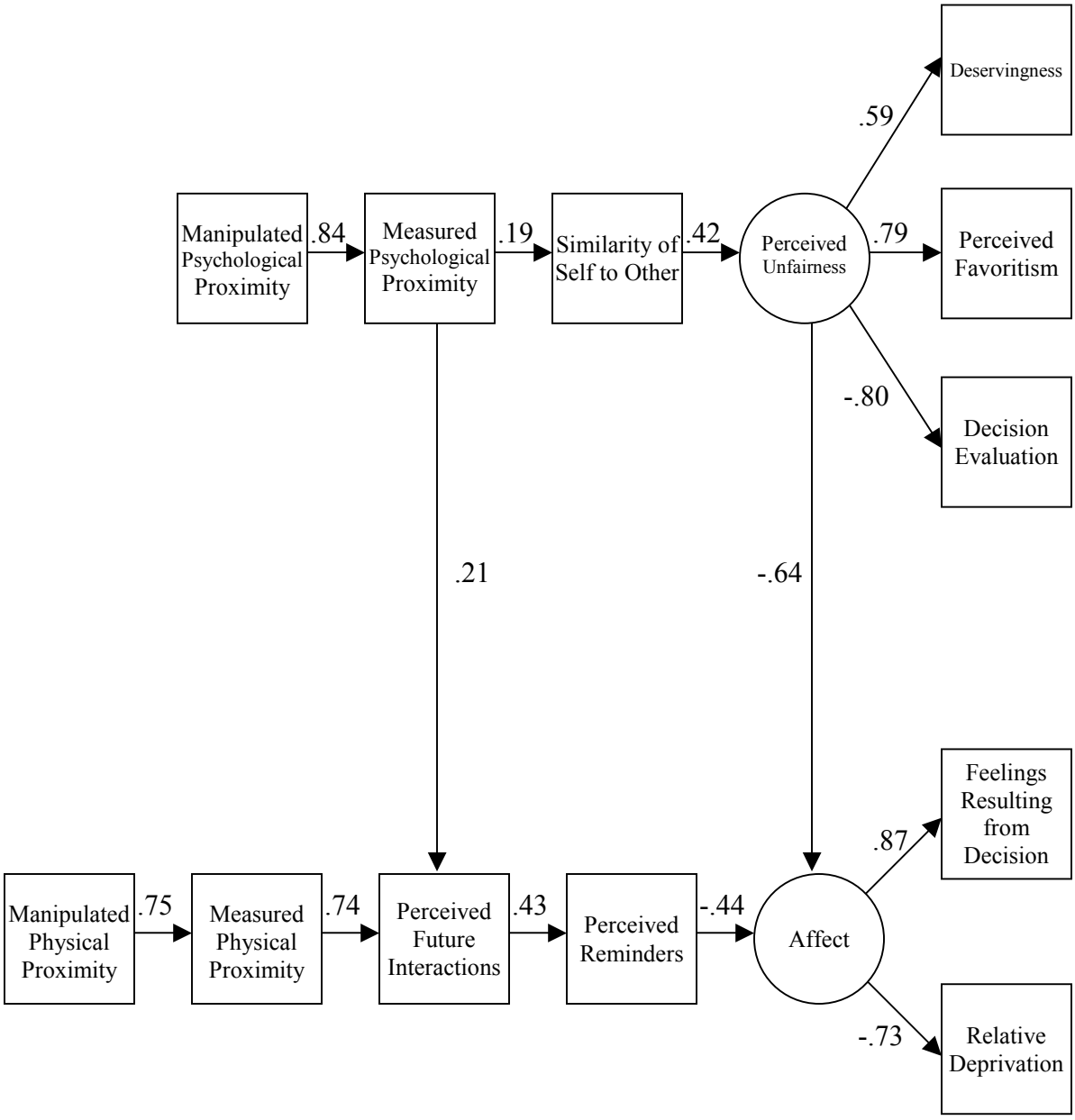

Note: Values represent standardized loadings and are significant ($p < .05$) unless noted otherwise.

Model fit was generally acceptable according to the CFI and IFI, not acceptable according the RMSEA:

Fit Indices for Modified Model in Fraternity, Work, and Job Scenarios in Study 7

Scenario	χ^2	CFI	IFI	RMSEA	90% CI_{lower}	90% CI_{upper}
Fraternity	110.17	.92	.92	.10	.07	.12
Work	116.00	.89	.89	.10	.07	.12
Job	142.93	.90	.90	.12	.09	.14

Note. $df = 52$, $N = 272$, CFI = comparative fit index, IFI = incremental fit index, RMSEA = root mean square error of approximation, 90% CI_{lower} = lower bound 90% confidence interval for RMSEA, 90% CI_{upper} upper bound 90% confidence interval for RMSEA. All χ^2 values are significant, $p < .001$.

The size and direction of loadings are consistent with those in previous studies. The nonsignificant prediction of similarity by psychological proximity is surprising, although this also occurred to a lesser extent in Study 6. Differences based on exclusivity were tested using similar procedures to those used to test for gender differences in previous studies. Constraints were imposed in both the measurement and structural models, so that the variances and loadings were identical, regardless of resource exclusivity. A significant decrease in model fit as a result of these constraints would indicate that the variances and/or loadings differed as a function of exclusivity. These results of these analyses are presented on the following page:

Analyses for Measurement and Structural Invariance as a Function of Resource Exclusivity in Study 7

Model	χ^2	*df*	χ^2_{diff}	df_{diff}	*p*	CFI	RMSEA
			Fraternity Scenario				
Baseline	172.36	104				.88	.07
Measurement Invariance	180.02	113	7.82	9	.57	.89	.07
Structural Invariance	195.28	130	15.26	17	.58	.89	.06
			Work Scenario				
Baseline	198.62	104				.89	.08
Measurement Invariance	213.18	113	14.56	9	.10	.88	.08
Structural Invariance	232.28	130	19.10	17	.32	.88	.08
			Job Scenario				
Baseline	162.88	104				.93	.07
Measurement Invariance	173.25	113	10.37	9	.32	.93	.06
Structural Invariance	195.28	130	22.03	17	.18	.92	.06

Note. CFI = comparative fit index, RMSEA = root mean square error of approximation.

As can be seen, measurement invariance was achieved in all scenarios, indicating a lack of differences based on resource exclusivity. This failure to find differences may have resulted from inadequate power owing to small sample size. A simple examination of the patterns of loadings across scenarios did reveal one noticeable effect. The prediction of similarity by psychological proximity was consistently stronger when the resource was non-exclusive. This may have occurred because the rewarding of an exclusive resource was a

mark of distinction, signifying that other rose above all others to receive their benefit, so that the participant did not seem similar to this person after all. When the resource was not exclusive, the allocation of this resource did not make the IB seem different or better; it was seen simply as unfair that additional rewards were available to others and yet were not provided to oneself.

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