SURVIVORS OF REORGANIZATION: AN INVESTIGATION OF DIFFERENT TYPES OF CHANGE IN PERCEPTIONS OF FAIRNESS

by

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(Under the Direction of Charles E. Lance)

ABSTRACT

The effectiveness of organizational interventions is typically evaluated using changes in mean levels. However, Golembiewski, Billingsley, and Yeager (1976) proposed the existence of three types of change: alpha, beta, and gamma. This paper applies the tripartite conceptualization of change to the evaluation of fairness in the context of a workplace reorganization to determine whether employees conceptualized organizational justice equivalently between groups as well as over time. Results indicate that (a) groups differ by hierarchical level in their conceptualization of both procedural justice and interpersonal justice, (b) groups also experience gamma change for these dimensions pre- and post-reorganization, (c) groups do not differ either by level or over time in their conceptualization of informational justice, and (d) groups do, overall, experience beta change, both between levels as well as over time, and thus responses to informational justice items are not uniformly calibrated. Results also illustrate the necessity of explicitly testing assumptions that the constructs being assessed are equivalent both for all groups as well as over time; they may, in fact, be neither.

INDEX WORDS: Fairness perceptions, organizational restructuring, longitudinal change

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CHAPTER I

INTRODUCTION

As organizations continue to face ever-increasing competitive pressures inherent to a global market, reorganization remains a popular tool for meeting increasing demands (Kozlowski, Chao, Smith, & Hedlund, 1993; O'Neill & Lenn, 1995). Consequently, large numbers of workers have faced layoffs and dramatic changes in jobs, such as job expansion, increased work hours, increased stress, and involuntary relocation (Kozlowski et al., 1993; O'Neill & Lenn, 1995). Given the continued popularity of reorganization, it is important that organizations recognize the need to manage perceptions of organizational justice both for victims of lay-off as well as survivors. Workplace reorganizations have a profound effect not only on those who are laid off but on surviving personnel as well (Kozlowski et al., 1993; Mansour-Cole & Scott, 1998). In order to effectively manage perceptions, organizations must accurately assess employees' perceptions of fairness. In this study I explore the consequences of reorganization for survivors' perceptions of fairness. I further propose and test the hypotheses that employees at different hierarchical levels will experience change differently.

Employees who remain with the company after reorganization form beliefs, attitudes, and perceptions about the justice or fairness of the process and the organization. These perceptions are referred to as justice perceptions (Brockner, 1988; Brockner & Greenberg, 1990). Organizations should be concerned about survivors' perceptions of justice because these perceptions affect a wide range of work-related outcomes such as

job satisfaction, organizational commitment, organizational citizenship behaviors (OCBs), trust, performance, theft, retaliation, absenteeism and turnover (cf. Colquitt, Conlon, Wesson, Porter & Ng, 2001). These outcomes impact organizational functioning, employees at all levels, and the bottom line. Given the relationship between perceptions of fairness and organizational outcomes and the relative ease with which organizations can modify organizational justice perceptions, it behooves organizations to manage their employees' perceptions of organizational justice.

The purpose of this study is twofold. First, I examine the relationship between organizational level (hourly, exempt, managerial, and directors and officers) and perceptions of organizational justice before and after layoffs. Second, I investigate whether employees at different hierarchical levels experience change differently. I examine *change* in fairness perceptions over *time* for the four groups as well as differences *between* groups using the alpha, beta, and gamma typology introduced by Golembiewski et al. (1976).

CHAPTER II

THEORETICAL BACKGROUND

Justice Perceptions in the Context of Reorganization

Recent research in the area of organizational justice suggests that justice perceptions are composed of the following four dimensions: procedural, interpersonal, informational, and distributive (Colquitt, 2001; Colquitt et al., 2001; Greenberg, 1993).

Procedural justice. Procedural justice is the extent to which individuals can contribute to and influence outcomes (Thibaut & Walker, 1975). Prior research has shown that organizational justice perceptions in reorganizations are influenced by how much input in the process employees have, including opportunities to provide input, actual providing of input, and the perceived instrumentality of providing input (Avery & Quiñones, 2002; Folger & Cropanzano, 1998; Lind, Kanfer, & Earley, 1990; Thibaut & Walker, 1975). Thus, the extent to which employees are allowed input during reorganization as well as the perception of the procedures leading up to the eventual layoff decisions should determine survivors' procedural justice evaluation.

Interpersonal justice. Interpersonal justice is the extent to which people are treated politely and with respect by authorities involved in implementing procedures or determining outcomes. Interpersonal justice serves to alter reactions to outcomes because sensitivity can buffer the effects of unfavorable outcomes (Colquitt et al., 2001). The perceived level of respect and sensitivity with which employees are treated during the

process of reorganization should then be related to survivors' perceptions of interpersonal justice.

Informational justice. Informational justice is defined as the extent to which explanation or justification is given for decisions, and whether the explanation or justification is given at the appropriate time. Perceptions of informational justice are related to the legitimacy (perceived accuracy) of the reasons given for the need for reorganization (Mansour-Cole & Scott, 1998) as well as to the timing of the explanation. Thus, the perceived accuracy and timing of information about the reorganization should be related to survivors' perceptions of informational justice.

Distributive justice. Distributive justice refers to the perceived appropriateness of an individual's outcomes given his or her contributions (Colquitt et al., 2001). While perceptions of distributive justice are related to the aforementioned outcomes and an important part of organizational outcomes, the focus of this study is limited to the dimensions of procedural, informational, and interpersonal justice for the following reasons. Distributive justice has been widely studied and not suffered from the problems of entanglement with other justice dimensions. Furthermore, because distributive justice is concerned with outcomes, those most severely affected by the reorganization (e.g. those who have been laid off) are unavailable to provide data. Informational and interpersonal justice, however, as separate constructs, have received little attention to date (Colquitt et al., 2001).

Given the relationship between perceptions of organizational justice and outcomes that are important to organizations, it is imperative that organizations accurately assess employees' perceptions of fairness. Without accurate measurement

organizations as well as direct supervisors cannot hope to effectively manage these perceptions in order to reduce negative outcomes such as turnover and theft and to promote positive outcomes such as OCBs. Organizations and researchers alike, however, often fail to evaluate the *type* of change that has occurred as a result of the reorganization. Without first determining the type of change, if any, that has occurred, any conclusions that are made regarding the success of the reorganization are of questionable use, and may even be detrimental. Each type of change is first defined and then applied to the process of organizational restructuring.

Alpha, Beta, and Gamma Changes

Prior to 1976, organizational change was generally operationalized as mean differences on self-report measures of attitudes. Mean difference changes between pre-intervention and post-intervention measures were the goal of interventions and uniformly accepted as an indication of individual change. However, Golembiewski et al. (1976) raised important and controversial issues in the evaluation of interventions by suggesting that organizational research must necessarily be concerned with different types of change. They differentiate between three types: alpha, beta, and gamma change.

Organizational interventions are usually designed to assess alpha change, using comparisons of responses on self-report data pre-and post-intervention to determine its effectiveness. For example, an organization might be concerned about perceptions of informational justice after reorganization. Prior to the process of reorganization, employees respond to a survey with items related to perceptions of informational justice. After the process is complete, respondents are again administered the same informational justice scale and mean differences are compared. A significant difference in mean

responses before and after the intervention would generally be taken as evidence of change in attitudes towards informational justice (Riordan, Richardson, Schaffer, & Vandenberg, 2003). However, the appearance of change may not be based on actual change in attitudes. To have any confidence that real change has occurred, testing for and ruling out the possibility of beta and gamma changes is paramount. Once the presence of beta and gamma change has been ruled out, the scale and the conceptual domain underlying the instrument can be assumed to be constant and mean differences can be assumed to represent real change. Only when these conditions are met do we have alpha change.

Beta change occurs when responses change from Time 1 to Time 2 because the values of the response scale have changed for the respondent between measurement periods. Such change indicates a recalibration of the person's internalized measurement scale. The intervals on the scale being used for measurement may have stretched or contracted so that the meaning of a response may change between measurements. This may occur as a result of the intervention, for reasons unrelated to the intervention, or with the passage of time. Thus, a new teacher might rate her level of content knowledge a 5 (on a Likert-type scale) at Time 1, prior to actually beginning teaching, but rate that same attribute a 3 at Time 2, because the experience of teaching may have caused her to gain awareness of gaps in her content knowledge. The existence of beta change could mean that the respondent does not perceive differences in the observed scale values as actual differences. Using the preceding example of the new teacher, it is doubtful that her content knowledge of the subject she is teaching actually decreased after a week or two of teaching, even though her response to the survey item indicates as much. Under scale

recalibration, "…the same or even improved organizational conditions may be associated with more negative perceptual and/or attitudinal responses on the posttest than on the pretest" (Koch & Rhodes, 1979). Beta change may also work to artificially inflate posttest scores.

Gamma change refers to the reconceptualization or redefinition of a concept. It occurs when people change their basic understanding, from one testing period to another, of the construct being measured. With alpha and beta changes the conceptual domain underlying the measure is assumed to be constant across measurement periods. Traditionally, gamma change has been treated as undesirable, or noise. However, for some interventions, such as diversity training, gamma change may be the desired outcome. While many might define racism as overt discrimination based on race, this kind of discrimination today is infrequent. Modern racism, while much more subtle, nonetheless has the same consequences (McConahay, 1986), thus a new understanding of what constitutes racism may be essential to effective diversity training. Gamma change may occur due to a concept having a different meaning post-intervention, or may result from a change in the respondent's values. Gamma change might also result from individuals' experiences (Armenakis & Zmud, 1979; Koch & Rhodes, 1979). For example, gamma change is of interest to the medical community because the experience of a medical crisis such as a heart attack or a terminal diagnosis may trigger gamma change. Regardless of how gamma change occurs, however, it renders comparisons of questionnaire items before and after the change inappropriate; respondents are no longer drawing on the same construct or conceptualization to answer the questions. If either beta or gamma change is present, it cannot be assumed that observed differences in mean

values are the result of alpha change (Millsap & Hartog, 1988; Vandenberg & Lance, 2000; Vandenberg & Self, 1993).

Traditionally, alpha change has been the objective of organizational interventions, and beta or gamma changes have been considered threats to validity that can render comparisons between mean differences meaningless. In these interventions, beta and gamma change may be due to specific events, the passage of time, or as an unintended result of the intervention, especially in longitudinal designs. The presence of alpha change can only be assessed when a change is detected on a measurement scale for which gamma and beta changes have been ruled out. However, organizational change interventions may have broader goals than alpha change. "Concept redefinition (gamma change) and scale recalibration (beta change) may be legitimate goals, depending on the objectives of a change intervention." (Riordan et al., 2003). If an organization is seeking to increase the consistency with which managers rate the same task performance, beta change is likely the desired outcome. An organization that seeks to transform customer service is likely to have gamma change as its objective. Thus managers are unlikely to be content with an increase in smiling and polite behavior on the part of their sales staff, but may wish staff to redefine customer service as "doing whatever is necessary to satisfy a client."

The Golembiewski et al. (1976) delineation of alpha, beta, and gamma change was a widely accepted operationalization of individual attitude change (e.g., Armenakis, Bedeian, & Pond, 1982; Howard, 1982). However, since its introduction few have truly incorporated this typology in their evaluation of organizational change (Riordan et al., 2003; Sashkin and Burke, 1987). Most researchers also fail to rule out the possibility of

gamma change, casting doubt on their results. Rather than viewing beta and gamma change merely as threats to validity, a first step in designing an organizational change intervention should be determining which type of change is desired.

What follows is a review of studies which attempt to effect alpha change, as well as studies aimed at creating either beta or gamma change. Also included are those studies that use techniques for dealing with the complexities of unplanned beta or gamma changes.

Alpha Change. The majority of organizational change research is designed to produce alpha change (Riordan et al., 2003). Alpha change interventions focus on improving the efficacy of established patterns of behavior. While few of these studies explicitly refer to alpha change, the focus is on mean differences in a construct over two or more intervals. It is assumed that the lack of discussion of the alpha, beta, gamma change typology is an indication that researchers either consider the scale intervals constant over measurement periods or that they are unaware of the implications of the other types of change. The majority of studies use a one-group pretest-posttest design, with measurement of the relevant constructs occurring both before and after the intervention (Riordan et al, 2003).

Golembiewski (1989) outlines some of the reasons which may explain why so few researchers test for beta and gamma change, even while acknowledging the imperative to consider more than simply alpha change. First, it is difficult to work within the given parameters; researchers cannot interpret any mean differences that may occur as a result of an organizational change initiative without first establishing that neither beta nor gamma change has occurred. However, organizations often seek change at the level

of gamma change in an effort to achieve profound and lasting change. Their objective is that employees redefine the goals of the organization, customer service, or quality in order to meet the changing demands or the market. Even moderate to great improvement in the way work is currently being done might not be sufficient. Building an exceptionally well designed, easy to use, and inexpensive typewriter is not likely to keep a typewriter manufacturer in business when typewriters have become obsolete. Thus in many cases to rule out gamma change implies that the intervention failed, or at least succeeded only marginally. Furthermore, if evidence of beta or gamma change is present, this does not necessarily mean that the intervention was a success. Measures of beta and gamma change are not directional and measure only the degree of change in patterns or structures. This leaves the change agent in the awkward position of needing evidence of gamma change to make the case that the intervention resulted in change of the magnitude of a paradigm shift or a change in organizational culture. However, if there is evidence that this is the magnitude of the change, he or she has no way of arguing that the change was for the better. These are likely the reasons why, in their review of alpha, beta, and gamma change research, Riordan et al. (2003) found that only 6% of the studies in their sample tested for unintentional beta/gamma change.

Beta Change. While the majority of researchers interested in alpha change do not test for either beta or gamma change or even address the possibility of their existence, there are a few notable exceptions. Prior to Golembeiwski's (1976) conceptualization of the change typology, Hurley and Hurley (1969) address concerns about what is clearly as yet unnamed beta change in an assessment of self-disclosure using the Jourard Self-Disclosure Questionnaire (JSDQ) (Jourard & Lasakow, 1958). Students who attended a

10 week course in interaction-oriented group counseling rated themselves as less disclosing at Time 2 (T2) than they had prior to the training intervention at Time 1 (T1). However, when questioned, the students mentioned that they had realized, as a result of the training, how inauthentically they had described themselves initially. Furthermore, their fellow group members rated two of the students whose JSDQ scores showed a marked decrease between weeks 1 and 10 as the *most* self-disclosing. Using that same scale, Walker, Shack, Egan, Sheridan and Sheridan (1972) found a similar phenomenon. Other researchers further acknowledge the possibility that scale recalibration may play a role in their results, but do not explicitly test for beta change (Adkins, 1995: Koch & Rhodes, 1979; London & Smither, 1995; Morrison, 1993).

Bar-On, Lazar, and Amir (2000) tested for scale recalibration in quality of life ratings based on a "where are you now in comparison to the first measurement" score, a technique similar to Terborg, Howard, and Maxwell's (1980) retrospective-then ratings. They concluded that beta change had occurred for 11% percent of respondents and that conclusions based on mean differences for those individuals were inappropriate. Eliminating these "scale recalibrators" from the analysis in this study resulted in even more significant differences between groups. Buckley and Armenakis (1987) test for beta change as well in perceptions of interviewer performance but found no evidence of its presence.

In an effort to determine whether beta or gamma change can occur in the absence of an intervention, Armenakis and Zmud (1979) administered the Survey of Organizations Questionnaire at T1 and T2 with no intervention in-between to determine if either beta or gamma change could be detected. After ruling out the possibility of

gamma change they tested for beta change and determined that it had occurred. They further concluded that this change was in part the result of maturation and/or history. Instrumentation, regression, and interaction effects may have also played a role in the beta change that was detected. In this case the data revealed a decrement in responses over the two administrations. Had an intervention that was mildly effective been administered rather than no intervention between T1 and T2, it would have been concluded that the intervention was a failure, or perhaps even detrimental. Failure to consider the implications of the change typology can lead to these kinds of erroneous conclusions.

Howard, Ralph, Gulanick, Maxwell, Nance, and Gerber (1979) postulated the idea that beta change, which they refer to as response shift bias, might be due to the lack of adequate information prior to an intervention with which to make informed responses. Under this premise they hypothesized that giving subjects some experience with the construct of interest would preclude the occurrence of beta change. They sought to avoid beta change via a twenty-minute pre-intervention and pre-test training session to provide subjects with a relevant construct. This pre-intervention training, however, failed to prevent beta change from occurring. Sprangers and Hoogstraten (1989) on the other hand, were able to prevent the occurrence of beta change following a similar procedure.

Gamma Change. As stated previously, most studies, if they address beta and gamma change at all, treat them as threats to the validity of alpha change. When beta and gamma change *are* addressed it is in order to increase the confidence with which results can be interpreted. Dormann and Zapf (1999) and Fields and Thacker (1992) provide representative examples of this approach to dealing with gamma change. Beta and

gamma change are addressed only briefly in both the preceding articles because the authors are concerned primarily with alpha change and focus on beta and gamma change simply to make the case that their effects have been tested for and ruled out. Neither gamma nor beta change is considered as a potentially desirable outcome.

A few studies utilize a more comprehensive approach to the measure of change, however. Riordan and Vandenberg (1994) address the issue of tripartite change by first testing the equivalence of constructs and measures across cultures before interpreting differences in mean scores between diverse groups. Testing for gamma change resulted in the conclusion that Koreans and Americans were using different frames of reference when responding to items on two scales. Any interpretation of observed differences on these measures between groups is thus inappropriate. For their third measure there was no evidence that Koreans and Americans were using different conceptual frames of reference. However, they did find evidence that the two cultural groups calibrated responses differently. Once this difference was discovered and accounted for they were able to compare means between the groups on this measure. The results of this study underscore the concern that other researchers have expressed against assuming measurement equivalence and assuming that responses are uniformly calibrated for all groups. Failing to test for beta and gamma change may lead to conclusions that are unwarranted. This is perhaps even more crucial for cross-cultural research. As Riordan and Vandenberg (1994) point out, simply translating a measure into the language of the culture of interest is no guarantee that these conditions have been met. Cultural factors may influence both how individuals interpret items as well as how they calibrate responses.

Gamma change is also found to be influencing results in studies by Randolph (1982) and Vandenberg and Self (1993). Without testing for gamma change, Randolph would have deemed the "Management by Objective/Effectiveness" area of the intervention a failure, because none of the scale items showed significant mean differences. These results contradict Lindell and Drexler's (1979) assertion that the assessment of alpha change alone is sufficient. Without testing for gamma change researchers would be led to inappropriately interpret the mean differences as meaningful. Because the preponderance of studies fail to test for beta and/or gamma change, it is likely that erroneous but preventable conclusions have been made on repeated occasions. This is of critical importance in that empirical research drives future research, which in turn drives policy recommendations. At the least these erroneous conclusions lead to mixed results in the literature and make ascertaining relationships that much more difficult.

Organizational culture change is one domain where gamma change must be the ultimate objective, though no studies of culture change were found which either used the alpha, beta, gamma change terminology or tested explicitly for beta and/or gamma change. As mentioned previously, Riordan, et al. (2003) found that of the studies examined for their review of alpha, beta, and gamma change, only 6% examined planned beta and/or gamma change. This figure includes those studies that are concerned with beta and/or gamma change but do not use that terminology.

The preceding examples underscore the necessity of not only considering alpha, beta, and gamma change when designing interventions and making hypotheses, but also in making theoretically based hypotheses about the types of change expected. Now that the alpha, beta, and

gamma change typology has been defined, I apply that typology to the present example, the reorganization process.

CHAPTER III

HYPOTHESES

The earlier discussion on justice perceptions has addressed only the general reactions of employees to the process of reorganization; that is, change over time due to the reorganization. However, employee reaction to reorganization is likely to also differ by *organizational level*, because employees at different hierarchical levels likely experience different cognitive processes, as well as having different experiences at work. Confirmation bias, equity theory, and self-serving bias, as well as the ways employees' experiences at work differ based upon their organizational level, all contribute to our understanding of why justice perceptions may differ between Executives and lower-level employees.

Confirmation Bias

Executives, because they make important decisions that lead to real consequences for employees, are likely to search for evidence which confirms that their decisions were correct, even when these conclusions are not justified based upon all available information (Pinkley, Griffith, & Northcraft, 1995). This process of searching for confirming evidence while ignoring disconfirming evidence is a preference which Jonas, Schultz-Hardt, Frey, and Thelen (2001) refer to as confirmation bias. Lower-level survivors, however, are likely to not only empathize with those who are laid off but to experience survivor guilt as well. There is ample evidence demonstrating the adverse effects of layoff specifically on survivors (Konovsky & Folger, 1991; Lind, Greenberg,

Scott, & Welchans, 2000). Furthermore, turnover often increases after layoff (Brockner, Wiesenfeld, & Stephan, 1997). Thus lower-level survivors are likely to experience confirmation bias as a search for evidence that supports the premise that layoffs are unnecessary, or necessary but only due to managerial incompetence.

Self-Serving Bias

Both Executives and lower-level employees are also likely to experience self-serving bias. Because failure represents a threat to self-esteem, individuals are motivated to deny responsibility for negative outcomes (Bradley, 1978). Executives may thus conclude that those employees who were laid off, for example, were selected for layoff fairly. This may be particularly true because far fewer Executives are likely to experience layoff. Furthermore, Executives who must make and deliver decisions about who will lose their jobs may choose to believe that those who are subject to layoff deserve to be laid off, in an effort to distance themselves from the individuals to whom they are causing harm. Efforts at distancing themselves from these employees may also translate into giving affected employees little or no notice of the impending layoffs, delivering the news in writing, or even hiring external consultants to deliver the message (Folger & Skarlicki, 1998). This can exacerbate feelings of interpersonal (in)justice experienced by lower-level employees who learn of how their colleagues were treated and thus expect to be similarly treated. The survivors of layoff are likely to identify with other lower-level employees who were laid off, however, and may blame the layoffs on management or chance rather than performance. This discrepant effect has been demonstrated in educational psychology as well. Juvonen (1988) found that teachers tend to attribute student outcomes (exam scores) to student-related factors such as ability and effort,

whereas students tend to attribute scores to external causes, such as chance or the teacher. While Exempt and Hourly employees should identify with other lower-level employees, Managers may respond differently because they often deliver news of layoff decisions even if they do not make those decisions.

Equity Theory

While employees at the highest levels of the organization are not immune to the threat of layoff, they are much more likely to receive generous severance packages and outplacement services if they do face layoff. Prior research in equity theory has shown that individuals believe outcomes that benefit themselves to be fair (Greenberg, 1983). It has also been found that overpayment is perceived to be fairer than underpayment (Greenberg, 1987), thus those who do not or cannot expect to receive generous severance packages are likely to attend to and evaluate fairness differently because the consequences of layoff are more immediately critical to them. As such, the perceptions or Managerial and Exempt employees, who can expect *some* form of severance package, albeit *not* one as generous as what is offered to Executives, likely differ from those of Hourly employees who can expect little in the form of a severance package.

Differences in Work Experiences

Individuals at the executive-level in organizations also have greater voice in the decision making process. Executives may also increase control during restructuring, as is typical during a crisis (D'Aunno & Sutton, 1989; O'Neill & Lenn, 1995). This may result in lower-level employees having even fewer opportunities for input than usual during reorganization. Given the above, it is likely that those individuals who are in positions high enough in the organization to afford them opportunities to provide input into the

process as well as with the ability to influence outcomes will be likely to perceive the procedure as fair. Those employees who are not part of the decision making core, however, likely redefine their conceptualization of procedural justice. The further the employee is from the decision making core, the less opportunity to provide input. Therefore not only are lower level employees likely to differ from Executives in their perception of how much "voice" they have, they are also likely to differ from each other.

The amount of information about the reasons and need for decisions related to reorganization is likely tied to employment level as well. Executives are in the best position to evaluate the accuracy of the reasons given for the need to reorganize, given their access to the information upon which the decision to reorganize was based. Additionally, they are more likely to receive their information from direct supervisors. Executives should also receive information earlier. In light of the above, Executives should perceive a high level of informational justice. Employees who are not privy to timely and accurate information, however, in a situation that has potentially grave consequences for themselves and their families, are likely to reconceptualize their understanding of informational justice. Because information tends to be filtered down, Lower-level employees are also likely to differ from each other due to differences in information received and timing of the information, which employees at the lowest levels being the least satisfied with the quality and timing of information related to the reorganization.

Finally, because Executives are more likely to possess skills and experiences that are valued by organizations, and because they are also more likely to be considered in-group members by other Executives, they are also likely to perceive high levels of

interpersonal justice. Employees who are not as highly valued as and who are thus more vulnerable than Executives, however, are likely to experience a heightened awareness of any signs of interpersonal (in)justice, leading in turn to a reconceptualization of interpersonal justice. As with procedural and informational justice, Lower-level employees are further likely to differ fundamentally from each other in their conceptualization of interpersonal justice, with employees having greater disparity in experience from Executives the further their level is from the executive level.

For all of the above reasons, Executives are likely to feel that the levels of procedural, informational and interpersonal justice are high after reorganization. Lower-level employees, however, with little influence or decision making power, are less likely to view the process as fair. As mentioned earlier, Executives who develop and implement plans for reorganization and the attendant layoffs and lower-level employees who face the threat of the consequences of those decisions are likely to have very different reactions to layoffs. Indeed, lower-level employees are likely to experience a profound shift in their very conceptualization of what organizational justice is or means for each of the dimensions because of the threat of job loss and the experience of witnessing the layoff of their colleagues and friends. Additionally, because the experiences of lower-level employees are likely to differ based upon their distance from the executive level, each of these groups is also likely to differ in ways that are not superficial from each other.

Hypotheses

On the basis of the preceding review of the literature, I predict that:

H1: Executives (Directors and Officers) should experience positive incremental (alpha) change in *procedural, interpersonal, and informational justice* perceptions pre- versus post-reorganization.

H2: Lower-level (Managerial, Exempt, and Hourly) employees who survive layoff should redefine what *procedural, interpersonal, and informational justice* mean after the process of reorganization (gamma change).

H3: Lower-level employees (Managerial, Exempt, and Hourly) who survive layoff should differ not only from Executives in their conceptualization of *procedural, interpersonal, and informational justice*, but, due to different experiences influenced by their membership in a particular organizational level, should also differ from each other.

H1 and H2 focus on changes in justice perceptions before and after reorganization within group. H2 specifically predicts a reconceptualization of what each dimension of organizational justice means pre- and post-reorganization for lower-level employees. H3 predicts gamma differences between groups, both pre- and post-reorganization. As mentioned earlier, if gamma change is found, comparisons of mean differences are meaningless if the concept being compared holds a different meaning for the groups being compared. Furthermore, gamma change is not directional; therefore there is no way of knowing whether the change is for better or for worse. However, should evidence of gamma change not be found mean difference comparisons can legitimately be conducted, and greater confidence can be had in the veracity of the results. Should such comparisons be warranted, I predict that:

H4: Executives are likely to have more favorable *procedural, interpersonal, and*

informational justice perceptions than survivors after reorganization.

Statistical Techniques for Assessing Alpha, Beta, and Gamma Change

Much of the response to Golembiewski et al. (1976) has been in the form of measurement techniques to detect the presence of alpha, beta, and gamma change. While a review of the major techniques is beyond the scope of this paper (see Armenakis & Zmud, 1979; Golembiewski, Billingsley, & Yeager, 1976; Schmitt, 1982; Terborg, Howard, & Maxwell, 1980) they are Ahmavaara's technique, actual-ideal pre- and postintervention comparisons, retrospective-then measures, and confirmatory factor analysis (Armenakis & Zmud, 1979; Golembiewski, Billingsley, & Yeager, 1976; Schmitt, 1982; Terborg, Howard, & Maxwell, 1980). While there are advantages and disadvantages to each of these techniques, the confirmatory factor analysis approach offers a key advantage in that it provides a statistical cut off for determining the presence of gamma and/or beta change, rather than relying on subjective assessments (Milsap & Hartog, 1988).

Schmitt (1982) presented the confirmatory factor analysis approach as a technique to assess different types of change and to distinguish them from unreliability. The terminology and steps recommended by Vandenberg and Lance (2000) in their recent review are followed in an attempt to develop consistency in the measurement equivalence and invariance (ME/I) literature. For this procedure, pre- and post-measures or measures for two or more groups are compared to determine the extent to which patterns of factor loadings differ. The first step in this technique is to test for the equality of the variance-covariance matrices pre and post intervention. A significant difference indicates that either (a) the factor pattern is different (some form of gamma change has occurred), (b)

the scale units have been recalibrated (some form of beta change has occurred), (c) the uniquenesses are different, or (d) a combination of the above. A nonsignificant chi-square value as well as reasonably good values on other overall goodness-of-fit indices has, until recently, been considered evidence of overall measurement equivalence across groups, and was believed to render subsequent tests of ME/I unnecessary (Vandenberg & Lance, 2000). However, current empirical research, including analyses done for this paper, suggests that expecting the omnibus test to serve as a gatekeeper to subsequent tests of ME/I may not be appropriate (R.J. Vandenberg, personal communication, May 6, 2005).

The first test in the series of nested models is a test of configural invariance, which serves as a test for gamma change (whether the pre-intervention and post-intervention administrations are measuring the same concepts). If the same factors are being measured, the number of factors and the pattern of factor loadings should remain the same (Vandenberg & Lance, 2000). If *both* the number of factors and the pattern of factor loadings are the same there is support for this form of ME/I and no reason to suspect gamma change. Furthermore, the chi-square value testing the difference between the observed and reproduced matrices should (in theory) result in a nonsignificant value if the hypothesized model is an adequate representation of underlying constructs both pre-and post-intervention (Schmitt, 1982; Schmitt, Pulakos, & Lieblan, 1984). The implications of finding support for ME/I are that the groups are using the same underlying conceptual framework and thus may be meaningfully compared and that further tests of ME/I may continue, so long as they are nested within the test of configural invariance. If configural invariance is not supported, however, no further tests of group differences are justified. Comparisons between groups on a construct are meaningless if

the construct being compared means something different for each group (Vandenberg & Lance, 2000).

The second test in the sequence is a test of metric invariance between groups (Horn & McArdle, 1992) or tests of the equality of the factor loadings for items measuring the same construct across measurements. This is the test for whether the scaling units have remained constant across groups, (both by level as well as for each level across measurement periods) or have been recalibrated; in other words, a test for beta change. If beta change is not present the fit between the observed and reproduced matrices should remain good. If there is a significant loss in fit, as determined by a significant difference chi-square value, then there is evidence of beta change

The third step is a test of scalar invariance (equal item intercepts across groups), which tests the invariance of indicator intercepts by constraining them to be equal. This test has been interpreted both as a test for systematic response bias (Bollen, 1989) or, alternatively, as representing desirable response differences based upon identified group differences (Vandenberg & Lance, 2000). As such, the test of scalar invariance may further be interpreted as an additional test of beta change, in that groups may differ in the value of rating items' intercepts as a result of experience, an intervention, such as training, or culture. For example, if one group of managers underwent training to reduce rating inflation in performance appraisal ratings one might expect to find a lack of scalar invariance between performance ratings given prior to training and those given after training. If the training was successful, managers should have recalibrated what constitutes a rating of a five, for example, on a seven point Likert-type scale.

The fourth step is a test of the invariance of unique variances across groups (or across measurement occasions). For this test like items' uniquenesses are constrained to be equal across groups.

The fifth step is a test for invariant factor variances, a third test for beta change. This test constrains like factor variances to be equal across groups. A significant chi-square value or large changes in the variance accounted for by the models suggest a worsening of fit and the presence of beta change (Riordan et al., 2003; Schmitt, 1982; Schmitt et al., 1984).

The sixth step is the test of invariant factor covariances across groups, and has been used as an additional test of gamma change (see Schaubroeck & Green, 1989; Schmitt, 1982; Schmitt et al., 1984; Vandenberg & Self, 1993). However, as Vandenberg and Lance (2000) point out, if the null hypothesis of configural invariance has been rejected then it is likely that the null hypothesis of invariant factor covariances would be rejected as well, and thus the test is redundant. If the null hypothesis of configural invariance has not been rejected but the null hypothesis of invariant covariances across groups is it would be difficult to make a claim for gamma change on the basis of this weaker test (Vandenberg & Lance, 2000).

The final test is a test of alpha change and is the test of equal factor means across groups. Once the prior tests have been conducted to establish ME/I, this test is to determine if groups differ in magnitude on the underlying construct. If evidence of the hypothesized gamma change is found between groups or for the hourly, exempt, and managerial groups over time, comparisons across these groups will not be appropriate. If ME/I exists across measurement periods, however, comparisons across measurement

intervals for that group may be made. If there is ME/I between the two groups as well as ME/I between measurement periods then tests of mean differences will be conducted to compare the two groups across measurement periods.

As with all of the techniques for assessing alpha, beta, and gamma change, there are disadvantages to the confirmatory factor analysis approach as well. The chi-square fit index is well known for being highly sensitive, especially when large samples are used. With large samples it is likely to be significant, indicating a poor fit of data to the proposed model, even when only very small differences actually exist (Bentler & Bonett, 1980), and therefore close-fit indices are also used to assess model fit.

CHAPTER IV

METHODS

Participants

Participants in this study totaled 5384 employees of a large telecommunications firm located in the United States from four different hierarchical levels (Hourly, *n* =1064; Exempt, *n* =2677, Managerial, *n* =1488, and Executives, *n* =155) and over three administrations. Participants were randomly selected from all levels of employees to participate; participation was voluntary.

Instrument

A single survey consisting of organizational justice items as well as items unrelated to this study was administered. The organizational justice items on the survey were either modified from existing justice scales to suit the needs of this particular organization, or taken directly from Colquitt's (2001) measure of organizational justice.

Procedure

Participants were contacted via email and were asked to fill out a survey related to the reorganization. All measures were assessed using 5-point Likert scales with response options ranging from 1=strongly disagree to 5=strongly agree. The survey was filled out and returned via the company intranet. Participants were informed that their participation was both voluntary and anonymous. Data were collected after employees learned that reorganization would occur, but before any announcements were made regarding specific

layoff decisions. The second wave of data was collected approximately a month later, after layoff decisions had been announced and were in effect. The third and final wave of data was collected approximately one month after the second.

To determine whether meaningful differences exist between levels in tenure, gender, or ethnicity, a series of one way ANOVAs using listwise deletion for missing data was performed. However, given that Executives are being compared to employees at and below the level of mid-management, it is reasonable to expect differences in all of these variables, with upper-level executives having greater tenure, and, given empirical research on the glass ceiling, being more frequently Caucasian males. Indeed, males were significantly more likely to have attained a higher organizational level for all three survey administrations with $F(2, 2641) = 112.66$, $p < .01$ for October, $F(2,2894) = 92.88$, $p < .01$ for November and $F(2,2259) = 59.49$, $p < .01$ for December. Overall differences in level by ethnicity were significant for all three months. For the October administration, there was a significant difference between Caucasians and African Americans in level attained ($p < .01$), and a significant difference in level attained between Caucasians and both African Americans and Hispanics in the November ($p < .01$) and December ($p<.05$) administrations. Significant differences in level attained were also found for tenure, with only the groups with 6-10 years experience *not* being significantly different from each other ($p < .01$) in all three administrations. All other groups were significantly different across all administrations ($p < .01$) with the exception of the group identifying their tenure as <2 years compared to the group identifying their tenure as 3-5 years in the December administration.

Analyses

Analyses of data were done in several phases. First, subjects were divided into four groups based on their level in the organization. For the reasons stated previously, Executives are likely to differ from employees at the level of mid-management and below in their perceptions of organizational justice for a number of reasons, including more opportunities for influence, greater access to information, and greater perceived respect. These opportunities are essentially limited to Executives. The Executive group is defined as all employees identifying their organizational level as either "director" or "officer." An added advantage of this grouping is an increase in sample size for the inherently small number of employees at the Executive level. All other employees, with the exception of those choosing not to identify their level, were grouped in their identified level (e.g., manager, exempt, or hourly). Data for Exempt employees was kept separate from both Managerial and Hourly employees because while Exempt employees have compensation levels similar to managers they do not have supervisory duties, and in that aspect are more similar to Hourly employees. Thus data were not aggregated for any but the two executive-level groups.

Because not all items on the survey were taken from validated scales, an exploratory factor analysis was conducted to determine which items loaded on which organizational justice dimensions. To initially identify the underlying factor structure of all items potentially representing organizational justice for each group, survey responses from a separate administration of the online survey collected several months after the restructuring were submitted to maximum likelihood factor analysis with Oblimin rotation. All groups appeared to conceptualize the organizational justice items as having three underlying dimensions. However, there were some considerable differences

between groups regarding which items fell under which dimension, with the Executives' results deviating the most from the theoretical model. In identifying the factors, items that had high factor loadings (.50 or higher) for any one of the groups (because gamma changes were hypothesized and differences between the groups expected) were retained. Also for this reason, items which cross-loaded highly were retained, because these items were considered the most likely to load differently between groups or over time. Parallel analysis and scree plots suggested the existence of three primary factors. They are identified as (a) Procedural Justice (12 items; e.g., "Appropriate people have input"), Interpersonal Justice (4 items; e.g., "I am treated with respect and dignity") and Informational Justice (4 items; e.g., "I have received sufficient information about the reorganization").

Confirmatory factor analyses were conducted using LISREL 8.7 (Jöreskog & Sörbom, 2002) to determine whether Executives conceptualized organizational justice items differently from lower-level employees and whether each group maintained its conceptualization across measurement intervals. The chi-square goodness-of-fit test is traditionally used for assessing model goodness-of-fit. However, because the chi-square value is well known for its sensitivity both to minor differences between groups' factor patterns and sample size (Bentler & Bonett, 1980), it is supplemented with other fit indices in order to infer model goodness-of-fit. Fit indices most commonly reported in the organizational literature were used (e.g., Medsker, Williams, & Holahan, 1994): the standardized root mean residual (SRMR), the root-mean-square error of approximation (RMSEA), the Tucker-Lewis index (TLI, also referred to as the "non-normed fit index" or NNFI), and the comparative fit index (CFI). The difference chi-square ($\Delta\chi^2$) and

difference CFI (ΔCFI) were used as additional tests for ME/I. A nonsignificant difference chi-square as well as a change in value of CFI less than or equal to –0.01 indicate that fit is not significantly worse with the additional constraints, thus the null hypothesis of invariance should not be rejected.

CHAPTER V

RESULTS

Fit indices for each model tested are presented in Tables 1-8. The omnibus test for the equality of the variance-covariance matrices pre- and post-intervention was conducted first both for all groups over time as well as for each group and each administration individually (see Table 1 for specific results). Failure to reject the null hypothesis indicates that overall measurement equivalence exists and further tests are unnecessary, according to Vandenberg and Lance (2000). Results indicated good fit, but because EFA results suggested differences, tests of configural invariance were conducted. For several groups' dimensions the results of these tests indicated poor model fit, in contradiction to omnibus test results. However, as mentioned previously, current empirical research suggests that the omnibus test may not be reasonably expected to serve as a gatekeeper for subsequent tests of ME/I (R. J. Vandenberg, personal communication, May 6, 2005). Consequently, even though the omnibus null was not rejected, the overall tests of configural invariance (the first test for gamma change), were conducted to determine if the theoretical conceptualization of organizational justice as a 3-Factor model served as an adequate representation of reality for each different level of employee as well as over time. The sequence of testing is outlined in detail in the flowchart in Figure 1.

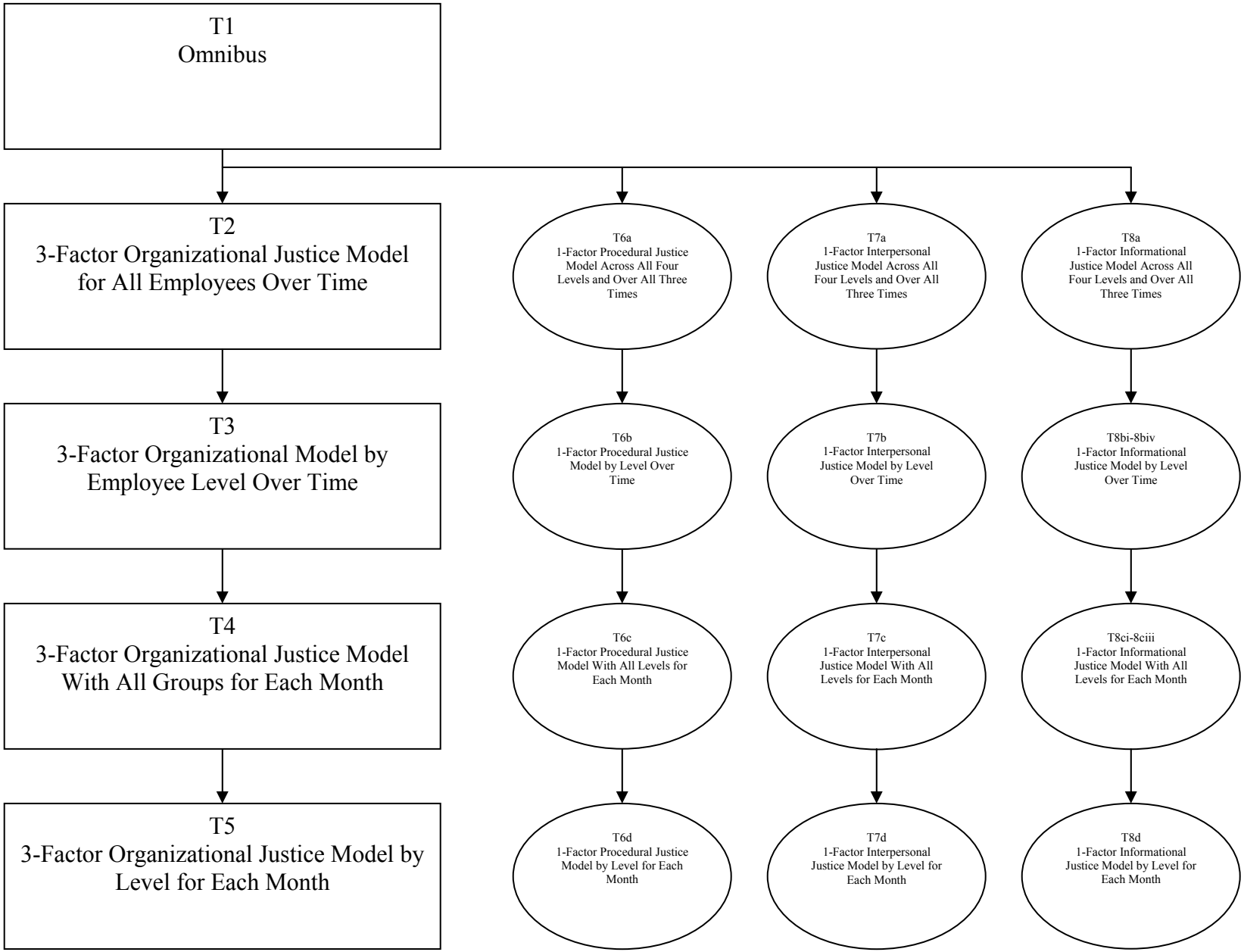

FIGURE 1: Flowchart CFA Tables

The fit of the overall configural invariance model which includes all four groups over three administrations is ambiguous (see Table 2), with a significant chi-square value as well some fit indices falling well-outside the suggested acceptable range (e.g., SRMR and RMSEA) but others meeting the (less stringent) requirement for acceptable fit (e.g., TLI and CFI). This suggests that there may be differences in the way participants at different organizational levels conceptualized organizational justice, or that their conceptualization changed over time, or both. However, because these results are somewhat ambiguous, I elected to continue with the sequence of tests and next ran the test of metric invariance. Although the CFI value did not change, the $\Delta\chi_2$, which is the most established indicator of differences between models, is significant at the .01 level, suggesting the additional constraints are untenable. In order to make comparisons of factor structure between groups or over a period of time, the hypothesized factor structure must represent a reasonable model of reality for at least one of the groups of interest. Therefore I moved on to a finer-grained examination of fit for the theoretical 3-factor model both by hierarchical level over time as well as for all levels within each measurement occasion (see Tables 3 and 4).

Results presented in Table 3 illustrate that the theoretical model fits best over time for the Exempt group, with fit for the Managerial group being nearly as good. Fit for Hourly employees is somewhat poor, and fit for the Executives is worse. Thus H1 is not supported, because, as stated previously, mean difference comparisons are meaningless if the construct being compared differs for the groups being compared. Poor fit for the Executive group over time suggests that they have experienced gamma change, and are no longer using the same conceptualization of organizational justice after reorganization.

Comparisons within each measurement occasion collapsing all groups together (Table 4) suggest a slightly more unified conceptualization of the justice dimensions after the October administration, when decisions regarding layoffs have been announced and largely implemented. However, fit is not good enough to demonstrate either support for H3 or ME/I, and therefore mean difference comparisons (H3) are unwarranted. Table 5, in which results of the Configural test are presented for each group for each measurement occasion are similar to the results presented in Tables 3 and 4; fit is best for the Exempt group, nearly as good for the Managerial group, poorer for Hourly employees, and worst for the Executives.

Because model fit thus far can at best only be described as "moderately good," it is as yet unclear whether H2 and should be rejected or is supported. In order to determine whether these hypotheses might be supported for some justice dimensions and not others, and because each of the justice dimensions examined is influenced by different processes, partial invariance was examined by testing the series of nested models as recommended by Vandenberg and Lance (2000) for each justice dimension separately. I performed the same tests as those conducted for the 3-factor model and presented in Tables 2-5 for each of the three justice dimensions, beginning with Procedural justice. Results for the Procedural justice tests are presented in Tables 6a-6d and present the sequence of tests of measurement equivalence separately for each of the three performance dimensions.

Overall fit for the configural test of the Procedural justice model for all four groups over the three measurement occasions is poor, (see Table 6a for specific results). This suggests that either groups conceptualize Procedural justice differently, groups change their conceptualization of Procedural justice over time, or both. Therefore I did

not continue with the sequence of ME/I test but proceeded to look at each group over time. Fit for each group over time was also relatively poor, indicating that Procedural justice was not the same construct and demonstrating partial support for H2. Results are presented in Table 6b. Next I looked at fit for Procedural justice for all groups within the same measurement occasion, and overall fit was similarly poor (see Table 6c), suggesting partial support for H3. Finally, I looked at Procedural justice for each group at each measurement occasion. Fit is still relatively poor, though for all groups except the Managerial group fit shows slight improvement over time, suggesting that employees, with the exception of the Managerial group, may have developed a more unified understanding of what Procedural justice is after experiencing a situation where the dimension likely became more important to them and thus more salient. These fit indices are presented in Table 6d.

Fit indices for the configural invariance test of the Interpersonal justice model for all four groups over the three measurement occasions are much more ambiguous than for the test of Procedural justice. Fit for SRMSR and CFI are extremely good, while fit for TLI is fair, and fit for RMSEA is poor (see Table 7a for specific results). Because results were equivocal, I continued with the test of Metric Invariance. The difference chi-square for these two models, however, was statistically significant, indicating that the additional constraints resulted in a significant worsening of fit, and also suggesting partial support for H2 and H3. Additionally, CFI dropped slightly from .97 to .96. I then proceeded to examine Interpersonal justice for each group over all measurement occasions. These fit indices are similarly ambiguous, but with a drop in TLI for the Hourly and Executive employees to levels below the lower-bound range of acceptability (see Table 7b). Next I

looked at all four groups within each measurement occasion. Results (presented in Table 7c) are again similarly ambiguous. Finally, I looked at fit for each group for each measurement occasion (see Table 7d). Fit was again ambiguous, but interestingly, was best for the Managerial group, especially for the October and December administrations. However, even for this group RMSEA was well outside the acceptable range of even the less stringent RMSEA $\leq .08$.

Next, I conducted the same model tests as above for the Informational justice dimension. Fit for this model is exceptionally good (see Table 8a for specific results). While the chi-square is significant, the sample size is large (n =5269). All other fit indices meet the more stringent guidelines, with the exception of RMSEA, which is .07, suggesting that gamma change is *not* present, thus employees do not conceptualize Informational justice differently either based upon their organizational level or after reorganization, contrary to both H2 and H3. Given this, I was able to continue with the test of metric invariance to determine whether participants experienced beta change. The difference chi-square value was significant at the .01 level, suggesting that employees differed in the way they calibrated the response scale for Informational justice, either by level or over time. I then looked at the fit for the 1-Factor Informational justice model for each group over time. Fit for the test of configural invariance was very good for all groups, with the exception of all chi-square values being significant at the .01 level and an RMSEA=.13 for the Executive group. These results are presented in Tables 8bi-8biv. Given the overall good fit of the configural models, I continued with the test of metric invariance for each of the four groups. Difference chi-square was significant for the Hourly, Exempt, and Managerial groups at the .05 level, suggesting that beta change may have occurred for these groups pre- and post-intervention. Difference chi-square was not significant for the Executive group, however, thus beta change is

not indicated for this group. Fit indices for these and subsequent tests are also reported in Tables 8bi-8biii. The next test in the recommended sequence is the test of scalar invariance (equal item intercepts across groups). The test of scalar invariance was conducted for each of the four groups. Difference chi-square for Hourly, Exempt and Managerial employees was significant at the .01 level. Given that the test of scalar invariance may be interpreted as an additional test of beta change (as mentioned previously), it provides further evidence of beta change, and thus these groups are not comparable. Difference chi-square for the Executives, however, was nonsignificant and thus I constrained uniquenesses to be invariant. Difference chi-square for the uniquenesses model versus the scalar model was significant at the .01 level, and so ME/I testing was halted and comparisons outlined in H4 are unwarranted.

TABLE 1:

CFA Model Goodness-of-Fit Indices: Omnibus Organizational Justice Model

Group	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
All Groups Over Time	2310	4617.30**	.18	.04	.99	.99
Hourly	420	679.43**	.12	.04	.99	.99
Exempt	420	690.75**	.04	.03	1.00	1.00
Managerial	420	720.54**	.05	.04	.99	.99
Executives	420	714.54**	.17	.07	.93	.91
October	630	1302.95**	.23	.04	.99	.99
November	630	1322.81**	.19	.04	.99	.99
December	630	1213.53**	.17	.04	.99	.99

Note. All Groups Over Time $n = 5269$; Hourly $n = 1064$; Exempt $n = 2677$; Managerial $n = 1488$; Executives $n = 155$; October $n=1785$; November $n=2053$; December $n=1431$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 2:

CFA Model Goodness-of-Fit Indices: 3-Factor Organizational Justice Model for All Employees Over Time

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	2004	12,943.83**	.11	.12	.93	.94	----	----	----
1 versus 2	----	----	----	----	----	----	187	480.34**	.00
2. Metric Invariance	2191	13,424.17**	.18	.12	.94	.94	----	----	----

Note. $n = 5269$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 3:

CFA Model Goodness-of-Fit Indices: 3-Factor Organizational Justice Model by Level Over Time

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
Hourly	501	3003.28**	.10	.14	.93	.94
Exempt	501	5583.18**	.09	.12	.94	.95
Managerial	501	3355.23**	.09	.12	.93	.94
Executives	501	1002.13**	.11	.13	.87	.88

Note. Hourly $n = 1064$; Exempt $n = 2677$; Managerial $n = 1488$; Executives $n = 155$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 4:

CFA Model Goodness-of-Fit Indices: 3-Factor Organizational Justice Model With All Groups for Each Month

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
October	668	4484.88**	.13	.13	.92	.93
November	668	4797.69**	.11	.12	.94	.94
December	668	3661.26**	.11	.12	.94	.94

Note. October $n = 1785$; November $n = 2053$; December $n = 1431$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 5:

CFA Model Goodness-of-Fit Indices: 3-Factor Organizational Justice Model by Level for Each Month

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
Hourly						
October	167	1065.35**	.11	.15	.93	.94
November	167	1045.24**	.09	.13	.94	.95
December	167	892.69**	.10	.13	.93	.94
Exempt						
October	167	2015.65**	.09	.12	.93	.94
November	167	2039.45**	.09	.11	.94	.95
December	167	1528.08**	.09	.11	.94	.95
Managerial						
October	167	1103.01**	.09	.12	.93	.94
November	167	1322.79**	.10	.12	.93	.94
December	167	929.44**	.09	.12	.93	.94
Executives						
October	167	300.87	.13	.12	.84	.86
November	167	390.21	.11	.14	.85	.86
December	167	311.05	.11	.13	.83	.91

Note. Hourly $n = 284$*; 371; 294.* Exempt $n = 931$; 1042; 704. Managerial $n = 524$; 575; 389. Executives $n = 46$; 65; 44. *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 6a:

CFA Model Goodness-of-Fit Indices: 1-Factor Procedural Justice Model Across Four Levels and Over All Three Times

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
1. Configural Invariance	648	6647.58**	.11	.17	.88	.90

Note. n = 5269*; df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; **p* < .05; ***p* < .01.

TABLE 6b:

CFA Model Goodness-of-Fit Indices: 1-Factor Procedural Justice Model by Level Over Time

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
Hourly	162	1456.84**	.09	.19	.87	.90
Exempt	162	2935.48**	.08	.16	.89	.91
Managerial	162	1886.46**	.10	.17	.86	.88
Executives	162	366.80**	.11	.18	.81	.84

Note. Hourly $n = 949$; Exempt $n = 2677$; Managerial $n = 1488$; Executives $n = 155$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = Comparative Fit Index; *$p < .05$; **$p < .01$.

TABLE 6c:

CFA Model Goodness-of-Fit Indices: 1-Factor Procedural Justice Model With All Levels for Each Month

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
October	216	2374.53**	.14	.17	.86	.88
November	216	2488.52**	.11	.16	.88	.91
December	216	1784.53**	.11	.17	.89	.91

Note. October $n = 1785$; November $n = 2053$; December $n = 1431$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 6d:

CFA Model Goodness-of-Fit Indices: 1-Factor Procedural Justice Model by Level for Each Month

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
Hourly						
October	54	506.06**	.11	.19	.84	.87
November	54	544.42**	.09	.18	.86	.89
December	54	408.36**	.09	.18	.90	.92
Exempt						
October	54	1135.42**	.09	.17	.87	.89
November	54	1062.62**	.08	.15	.90	.92
December	54	737.44**	.08	.15	.90	.92
Managerial						
October	54	614.01**	.09	.17	.86	.88
November	54	730.38**	.09	.17	.87	.89
December	54	542.07**	.10	.18	.85	.87
Executives						
October	54	119.04**	.14	.18	.64	.70
November	54	151.10**	.11	.19	.81	.84
December	54	96.65**	.11	.16	.89	.91

Note. Hourly n = 284; 371; 294. Exempt n = 931; 1042; 704. Managerial n = 524; 575; 389. Executives n = 46; 65; 44. *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *p < .05; **p < .01.

TABLE 7a:

CFA Model Goodness-of-Fit Indices: 1-Factor Interpersonal Justice Model Across All Four Levels and Over All Three Times

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	24	485.17**	.04	.21	.91	.97	----	----	----
1 versus 2	----	----	----	----	----	----	33	85.72**	-.01
2. Metric Invariance	57	570.89**	.20	.14	.96	.96	----	----	----

Note. n = 5269; df = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 7b:

CFA Model Goodness-of-Fit Indices: 1-Factor Interpersonal Justice Model by Level Over Time

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
Hourly	6	144.30**	.05	.27	.85	.95
Exempt	6	226.75**	.04	.20	.91	.97
Managerial	6	91.45**	.02	.17	.94	.98
Executives	6	22.68**	.04	.24	.87	.96

Note. Hourly $n = 949$; Exempt $n = 2677$; Managerial $n = 1488$; Executives $n = 155$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 7c:

CFA Model Goodness-of-Fit Indices: 1-Factor Interpersonal Justice Model With All Levels for Each Month

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
October	8	174.29**	.06	.22	.89	.96
November	8	170.77**	.05	.20	.92	.97
December	8	140.12**	.04	.21	.90	.97

Note. October n = 1785; November n = 2053; December n = 1431; df = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 7d:

CFA Model Goodness-of-Fit Indices: 1-Factor Interpersonal Justice Model by Level for Each Month

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
Hourly						
October	2	72.12**	.07	.35	.74	.91
November	2	28.81**	.04	.19	.92	.97
December	2	43.36**	.05	.26	.87	.96
Exempt						
October	2	77.30**	.04	.20	.90	.97
November	2	74.78**	.03	.19	.93	.98
December	2	74.67**	.04	.22	.89	.96
Managerial						
October	2	19.88**	.02	.13	.96	.99
November	2	54.08**	.04	.21	.91	.97
December	2	17.49**	.02	.14	.96	.99
Executives						
October	2	4.99	.06	.17	.89	.96
November	2	13.09**	.05	.31	.93	.94
December	2	4.60	.04	.18	.93	.98

Note. Hourly *n* = 284; 371; 294. Exempt *n = 931; 1042; 704.* Managerial *n* = 524; 575; 389. Executives *n* = 46; 65; 44. *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; **p* < .05; ***p* < .01.

TABLE 8a:

CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model Across Four Levels and Over All Three Times

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	24	75.27**	.04	.07	.99	1.00	----	----	----
1 versus 2	----	----	----	----	----	----	33	57.64**	.00
2. Metric Invariance	57	132.91**	.08	.05	.99	1.00	----	----	----

Note. $n = 5269$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 8bi:

CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model for Hourly Employees Over Time

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	6	20.95**	.01	.09	.99	1.00	----	----	----
1 versus 2	----	----	----	----	----	----	6	14.46*	.01
2. Metric Invariance	12	35.41**	.06	.08	.99	.99	----	----	----
2 versus 3	----	----	----	----	----	----	6	16.16*	.00
3. Scalar Invariance	18	51.57**	.06	.08	.99	.99	----	----	----
3 versus 4	----	----	----	----	----	----	8	28.84**	-.01
4. Invariant Uniquenesses	26	80.41**	.05	.08	.99	.98	----	----	----

Note. n = 949; df = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 8bii:

CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model for Exempt Employees Over Time

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	6	21.65**	.01	.05	.99	1.00	----	----	----
1 versus 2	----	----	----	----	----	----	6	15.11*	.00
2. Metric Invariance	12	36.76**	.03	.05	1 .00	1.00	----	----	----
2 versus 3	----	----	----	----	----	----	6	26.42**	-.01
3. Scalar Invariance	18	63.18**	.03	.05	.99	.99	----	----	----

Note. n = 2677; df = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; **p* < .05; ***p* < .01.

TABLE 8biii:

CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model for Managerial Employees Over Time

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	6	20.35**	.01	.07	.99	1.00	----	----	----
1 versus 2	----	----	----	----	----	----	6	11.08*	.00
2. Metric Invariance	12	31.43**	.04	.06	.99	1.00	----	----	----
2 versus 3	----	----	----	----	----	----	6	34.10**	-.01
3. Scalar Invariance	18	63.53**	.04	.07	.99	.99	----	----	----

Note. n = 1488; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 8biv:

CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model for Executive Employees Over Time

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	6	12.31**	.04	.13	.95	.98	----	----	----
1 versus 2	----	----	----	----	----	----	6	3.56	.01
2. Metric Invariance	12	15.87**	.07	.05	.99	.99	----	----	----
2 versus 3	----	----	----	----	----	----	6	11.85	-.01
3. Scalar Invariance	18	27.72**	.07	.09	.98	.98	----	----	----
3 versus 4	----	----	----	----	----	----	8	20.90**	.00
3. Invariant Uniquenesses	26	48.62**	.07	.10	.96	.94	----	----	----

Note. $n = 155$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 8ci:

CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model With All Levels for October

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	8	32.25*	.02	.08	.99	1.00	----	----	----
1 versus 2	----	----	----	----	----	----	9	10.59	.01
2. Metric Invariance	17	44.84**	.12	.06	.99	.99	----	----	----
2 versus 3	----	----	----	----	----	----	9	18.31*	.00
3. Scalar Invariance	26	63.15**	.11	.06	.99	.99	----	----	----
3 versus 4	----	----	----	----	----	----	12	65.81**	-.01
4. Invariant Uniquenesses	38	128.96**	.11	.07	.99	.98	----	----	----

Note. n = 1785; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 8cii:

CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model With All Levels for November

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	8	15.49*	.02	.04	1.00	1.00	----	----	----
1 versus 2	----	----	----	----	----	----	9	7.91	.00
2. Metric Invariance	17	23.40	.03	.03	1.00	1.00	----	----	----
2 versus 3	----	----	----	----	----	----	9	9.36	.00
3. Scalar Invariance	26	32.76	.03	.02	1.00	1.00	----	----	----
3 versus 4	----	----	----	----	----	----	12	93.51**	-.01
4. Invariant Uniquenesses	38	126.27**	.13	.08	.99	.99	----	----	----

Note. $n = 2053$; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 8ciii:

T7ci CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model With All Levels for December

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI	Δdf	$\Delta\chi^2$	ΔCFI
1. Configural Invariance	8	25.52**	.04	.08	.99	1.00	----	----	----
1 versus 2	----	----	----	----	----	----	9	4.70	.00
2. Metric Invariance	17	30.22*	.05	.04	1.00	1.00	----	----	----
2 versus 3	----	----	----	----	----	----	9	42.69**	.00
3. Scalar Invariance	26	72.91**	.05	.07	.99	1.00	----	----	----

Note. n = 1431; *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

TABLE 8d:

CFA Model Goodness-of-Fit Indices: 1-Factor Informational Justice Model by Level for Each Month

Model	*df*	χ^2	SRMSR	RMSEA	TLI	CFI
Hourly						
October	2	5.70	.01	.08	.99	1.0
November	2	9.98**	.01	.10	.98	.99
December	2	5.27	.01	.07	.99	1.0
Exempt						
October	2	13.10**	.01	.08	.99	1.0
November	2	1.58	.00	.00	1.0	1.0
December	2	6.98*	.01	.06	.99	1.0
Managerial						
October	2	13.37**	.02	.10	.98	.99
November	2	3.68	.01	.04	1.0	1.0
December	2	3.30	.01	.04	1.0	1.0
Executives						
October	2	2.08	.02	.00	1.0	1.0
November	2	.26	.01	.00	1.0	1.0
December	2	9.97**	.04	.28	.83	.94

Note. Hourly n = 284; 371; 294. Exempt n = 931; 1042; 704. Managerial n = 524; 575; 389. Executives n = 46; 65; 44. *df* = model degrees of freedom; SRMSR = standardized root mean squared residual; RMSEA = root mean squared error of approximation; TLI = Tucker-Lewis Index; CFI = comparative fit index; *$p < .05$; **$p < .01$.

CHAPTER VI

DISCUSSION

The present investigation was conducted to examine the fairness perceptions of Executives and lower-level employees before and after a reorganization with attendant layoffs. I tested whether both groups maintained the same conceptualization of each organizational justice construct over time, and whether they differed from each other in their conceptualization of justice. I found the prevalence of gamma change to be, in some ways, even more pervasive than originally expected. As such, comparisons on organizational justice perceptions for Executives pre- and post-reorganization (H1) were unjustifiable; they had reconceptualized their understanding of organizational justice. Gamma change was not as pervasive as expected, however, for lower-level employees pre- and post-reorganization. While partial support was found for H2 in the dimensions of procedural and interpersonal justice, there was no evidence of gamma change for the informational justice dimension. Interestingly, Hourly, Exempt, Managerial, and Executive employees maintained their conceptualization of informational justice over time, though some groups did experience beta change and none of the groups had the full invariance necessary to justify mean difference comparisons. Results for H3 mirror those for H2. Partial support was found for procedural and interpersonal justice, but again no evidence was found for gamma change. All groups conceptualized informational justice similarly in October, November, and December. However, as for informational justice

over time, full invariance was not demonstrated and thus mean difference comparisons were not made.

This investigation contributes to the literature in several ways. As stated earlier, researchers and practitioners alike almost universally fail to rule out the presence of beta and gamma changes before making mean difference comparisons. Furthermore, the few studies that address the problem of ME/I generally seek to rule out the presence of beta and gamma change in order to ascertain that mean difference comparisons can legitimately be made. Researchers and practitioners alike should, however, consider which type of change is appropriate and/or expected based on the objectives of a given intervention and theory. Beta change might be a desired outcome of rater training for example, while the ultimate objective of an intervention designed to effect culture change should be gamma change. The present investigation is, to the best of my knowledge, the first to explicitly both hypothesize and test for gamma change.

This paper further contributes to the literature by illustrating the importance of testing for *beta* and *gamma changes* in longitudinal or cross-group comparison research. The present results showed evidence of gamma change for all dimensions of organizational justice *except* perceptions of informational justice. Gamma change was evident both *over time* and *between groups,* and its effect was even more pervasive than expected, affecting *all* groups. Additionally, even when gamma changes were not present, (e.g., for the informational justice dimension) beta change was prevalent. Mean difference comparisons would be unwarranted in this case, but in research and in practice they are routinely made without first ruling out the possibility of beta and gamma changes. While researchers have warned against the practice of failing to rule out beta

and gamma change before mean differences can meaningfully be interpreted, few studies have actually heeded these warnings (see Riordan & Vandenberg, 1994; Vandenberg & Self, 1993).

I also contribute to the literature on justice by highlighting the importance of differentiating justice perceptions across organizational levels, and providing a theoretical framework for why differences might occur. Past research has assumed that employees at various levels of organizations evaluate organizational justice similarly in reorganization. Given their highly disparate experiences at work, however, this may be an assumption that fails to hold up to further scrutiny. My results suggest that employees at each hierarchical level conceptualize the procedural and interpersonal dimensions of organizational justice differently. Additionally, while they share a common frame of reference for their understanding of informational justice, they do not use a common metric for evaluating informational justice. A focus on how groups at various levels in an organization conceptualize organizational justice has the potential to push the justice literature forward.

In addition to assuming that employees both conceptualize and scale organizational justice similarly, researchers have also largely assumed that employees maintain the same conceptualization of organizational justice pre- and post-reorganization. The analyses for this investigation suggest that that also may not be true. Evidence was found for gamma change over time for the dimensions of procedural and interpersonal justice and evidence of beta change was found for the dimension of informational justice. Given the real-life consequences for employees in an organization undergoing a restructuring, even for those who manage to survive layoff, these results are

perhaps not surprising. This is an area that is in need of additional research, however, to determine if beta and gamma changes should be an expected outcome for at least some constructs. Further research that incorporates the alpha, beta, and gamma typology and investigates organizational justice by hierarchical level as well as longitudinally has the potential to contribute to a deeper understanding of organizational justice.

Although the present study adds to both the literature on alpha, beta, and gamma changes as well as the literature on organizational justice, it does have several limitations. One potentially serious limitation of this study is that not all items used to assess organizational justice were taken from a validated scale, due to the constraints of working with an organization. Future research is needed to assess whether similar results occur using a full validated organizational justice scale. While this suggests that some caution should be exercised in interpreting results, surprisingly, interpersonal justice, the dimension for which all items were taken directly from, or slightly modified from, existing scales, was the dimension for which results are the most equivocal. Additionally, the sample size for the Executives group was necessarily smaller than is desirable, given the relatively small number of employees at this level. Finally, all survey items are self-report, which is of concern due to the potential for common method bias. However, the assessment of attitudes necessitates the use of self-report data.

Overall, organizations should consider two issues in reorganization: how fairness perceptions differ by organizational levels in reorganization, and the tri-partite nature of change when designing reorganization. Failure to consider beta and gamma change in fairness perceptions may lead to results which are easily interpreted but meaningless; apparent mean differences may not be attributable to alpha change if gamma and beta

change have not been ruled out. Because perceptions of organizational justice are linked to important outcomes, and because empirical results drive future research, failure to accurately assess fairness perceptions can have costly repercussions for the organization both immediately and over the long term.

Past research has sought to rule out gamma change to establish measurement equivalence. Researchers currently call for research that hypothesizes gamma and/or beta change, and make the argument that gamma change may be desirable for some interventions. However, tests for gamma change are not directional. Although gamma change is not directional, it is possible that organizations may be able to gain some insight into whether or not the change is positive for the organization through the use of open-ended questions of a qualitative nature. Individuals who experience beta or gamma change are not unaware of the change. The paradoxical statements made by subjects after interventions are what led Golembiewski et al. (1976) to initially propose the different types of change. Open-ended comments may also reveal that the intervention has had unintended and unpredicted consequences. Organizations should consider the tri-partite nature of change when designing objectives for organizational interventions, even though gamma change is not as easily interpreted. Furthermore, policy decisions and recommendations based on any analyses that fail to consider beta and gamma change are as best ineffective, and at worst, detrimental.

In summary, the present study demonstrates the necessity of explicitly testing the assumption of measurement equivalence of organizational justice dimensions for different groups as well as for groups over time. From these results it can also be inferred that failure to test for measurement equivalence generally can, and probably does, lead to

conclusions that are inappropriate and even misleading. This is of concern because these conclusions in turn lead to additional studies and/or policy decisions which are misguided. This study also attempts to illustrate the need to consider and decide upon the type of change that is desired of an intervention in the design of an intervention, and to point out that while gamma change may be considered undesirable in some instances, there are a multitude of occasions where gamma change might be the expected result or even the desired goal of an intervention.

Results also suggest that it cannot safely be assumed that groups at different hierarchical levels in an organization conceptualize organizational justice in the same fashion, nor that conceptualizations of organizational justice remain stable over time. More research is necessary in this area to determine how groups differ both from each other as well as over time in their conceptualization of justice dimensions, and what the implications of those differences are for organizations which attempt to manage perceptions of organizational justice. Future research which acknowledges and tests for potential differences in conceptualizations of organizational justice has the potential to increase researchers' understanding of the determinants of organizational justice perceptions for various groups.

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