The purpose of this research was to develop and test a model linking justice perceptions to a series of variables leading to turnover. Confirmatory and exploratory path analyses were performed to identify primary paths from procedural and distributive justice perceptions to job satisfaction, organizational commitment, work group performance, attendance motivation, turnover intentions, and in turn, turnover. Results indicated that positive procedural and distributive justice perceptions were associated with increased intrinsic and extrinsic job satisfaction, and organizational commitment. Procedural justice perceptions were positively related to perceptions of work group performance. Distributive justice perceptions were negatively related to turnover intentions. Actual turnover was directly influenced by only one factor, turnover intentions, and indirectly by all variables in the model except for work group performance perceptions and extrinsic job satisfaction.

A vast amount of research in recent years has been devoted to the topic of organizational justice which refers to employee perceptions of fairness in the workplace or organizational setting (Cropanzano & Greenberg, 1997; Greenberg, 1990). Cropanzano and Greenberg (1997) have noted that organizational justice has been one of the primary topics of interest during the 1990s for scientists in industrial-organizational psychology, human resources management, and organizational behavior. Furthermore, they indicate that this interest continues today and appears to show no sign of decreasing in the foreseeable future.
Much of the early organizational justice research focused on distributive justice, which reflects the perceived fairness of pay and other rewards received. Because of its focus on outcome fairness, Adams' (1963; 1965) equity theory has been commonly used to operationalize the construct (Tornblom, 1990). According to equity theory, perceptions of distributive justice arise from comparisons of work outcomes, given inputs against certain referent others, and the comparison concept used by the employee. Most natural settings present several plausible referent comparisons (Ronen, 1986).

Some previous equity theory research has focused on the possibility for an employee to make internal comparisons (i.e., relative to others inside the organization) or external comparisons (relative to others outside the organization). Contrary to what was previously proposed (e.g., Goodman, 1974), more recent research (Ronen, 1986) suggests that both internal and external comparisons are significant, and that workers at all levels are likely to use both. A system or expectancy referent (e.g., Austin, McGinn & Susmilch, 1980; Goodman, 1974) is also possible. This type of comparison refers to the implied contract between the individual and the organization that relates to expected outcomes and inputs—the promises relative to exchanges between the employer and the employee.

More recently, procedural justice (e.g., Folger & Greenberg, 1985; Lind & Tyler, 1988) has been established as an additional component of justice that has important influences on employee outcomes. While distributive justice focuses on the fairness of outcomes, procedural justice addresses the fairness of the procedures used to achieve those outcomes.

There has been debate about how to conceptualize and distinguish the components of procedural justice (see reviews by Greenberg, 1990; Lind & Tyler, 1988). In suggesting new directions for the study of organizational justice, however, Greenberg (1990) encouraged unified approaches to understanding the interpersonal context of procedural justice. We believe that a division of procedural justice components based on the likely perceived source associated with the justice/injustice may be a way to unify some of the components identified in previous research. There is a great deal of research to suggest the importance of differentiating justice components based on the likely perceived source of the injustice (Barling & Phillips, 1993; Moorman, 1991; Skarlicki & Folger, 1997). More specifically, referent cognitions theory (Cropanzano & Folger, 1989) holds that an important distinction is whether the justice/injustice is attributable to someone else's actions (a person in an authority position with whom the employee interacts), and that the target
of retaliation (be it the system or one individual within that system) is likely to be important in predicting the attitudes and outcomes that result from the justice/injustice.

According to this source-based division, we propose that most of the components of procedural justice identified in previous research can be placed into one of two broad categories: formal procedures or interpersonal treatment. With formal procedures (e.g., policies and procedures used to conduct performance evaluations, make compensation decisions) the source of the justice/injustice is on the system or organization as a whole. The focus is on formal actions or policies that would apply to all employees equally. Interpersonal treatment, on the other hand, focuses on the informal actions by someone in a position of authority over the employee. This component of justice would include any interpersonal treatment which reflects informal actions on the part of someone in authority (e.g., the enactment of formal procedures, ongoing actions such as feedback and general treatment of the employee).

In this paper we will focus on the interpersonal treatment component of procedural justice since its influence is likely to be distinctly different from distributive justice. For example, distributive justice and formal procedures are likely to overlap in their influence since it is the formal procedures that have the most direct impact on outcomes such as pay and promotions for employees. The interpersonal treatment component of procedural justice may be responsible for the findings (Folger & Konovsky, 1989; McFarlin & Sweeney, 1992; Tyler & Bies, 1989) of unique effects of procedural justice in comparison to distributive justice in its relationships with other attitudes and behaviors. Although interpersonal treatment may have indirect effects on outcomes, it is also more likely than other structural or formal procedures to have unique, non-instrumental effects (Korsgaard & Roberson, 1995; Sweeney & McFarlin, 1993). By focusing on the aspect of procedural justice that is most remote from distributive justice, we hope to provide a clearer understanding of the unique roles of each in their relationships with other variables.

Justice to Satisfaction and Commitment

Past research suggests that both distributive and procedural justice influence many of the variables that have been found to be important predictors of turnover—i.e., satisfaction and commitment. For example, Miceli, Jung, Near, and Greenberger (1991) validated a causal pathway leading from fairness of the pay system to improved job satisfaction and, in turn, to reducing intentions to quit the organization. Furthermore, recent research (Martin & Bennett, 1996) suggests that justice perceptions are critical for understanding the relationship between satisfaction
and commitment. “In essence, the belief of researchers who support the value of organizational justice is if employees believe that they are treated fairly, they will be more likely to hold positive attitudes about their work, work outcomes, and their supervisors” (Moorman, 1991: p. 845).

To date there has been little research to provide a comprehensive model of the effects of procedural and distributive justice on factors that are strong predictors of turnover—satisfaction and commitment. The purpose of this research was to develop a model which better explains the effects of justice on a series of intervening variables leading to turnover. Figure 1 depicts this study’s research model containing the specific hypotheses guiding this research. The discussion below provides a basis for the development of such a model which might help in understanding the dynamic relationships between justice components, intervening variables, and turnover.

Many studies have shown that both distributive and procedural justice are related to facet-specific satisfaction (e.g., Martin & Bennett, 1996), general job satisfaction (e.g., Dailey & Kirk, 1992; McFarlin & Sweeney, 1992), and attitudes about both institutions and authorities (e.g., McFarlin & Sweeney, 1992; Tyler, 1989). Facet-specific satisfaction deals with specific aspects or facets of the job such as supervision, pay, promotion opportunities, and relationships with coworkers while general job satisfaction is the overall feeling of satisfaction that individuals have toward their jobs (Robbins, 1998). Researchers have often used exchange frameworks (e.g., Niehoff & Moorman, 1993) and perceptions of contract type (e.g., Folger & Konovsky, 1989) to explain the relationships between justice and attitudes toward the organization. Rousseau (1989) and Rousseau and Parks (1993) suggest that employment obligations, which form the basis for psychological contracts, are embedded in the context of social exchange (i.e., cooperation between two or more parties for mutual benefit) (Cosmides & Tooby, 1987).

In other words, psychological contracts reflect the individual’s beliefs or perceptions regarding their obligations to the employer and the employer’s obligations to the individual (Rousseau, 1989). Justice on the part of an employer is likely to increase employees’ perceived obligations to the employer and, in turn, affect their attitudes and potentially their behaviors. Justice influences on extrinsic satisfaction, as shown in Figure 1, can best be explained when these contracts are perceived as transactional or economic (see review by Robinson, Draatz, & Rousseau, 1994). Such transactions on monetary and instrumental exchanges between the employer and the employee. Distributive justice or the fairness of outcomes, such as pay, should play an obvious role in this process.
Procedural justice is also likely to influence extrinsic satisfaction through this same process. More specifically, prior research suggests that perceived fairness of outcomes should be based, at least in part, on the procedures or processes through which they are determined (Folger & Greenberg, 1985). In other words, the value of fair interpersonal treatment within an economic exchange framework is that it makes it more likely that outcomes will be fair. For example, Thibaut and Walker's (1975) control theory of procedural justice is consistent with an economic exchange framework because it emphasizes instrumental concerns in the exchange relationship.

When contracts are perceived as relational, they may also involve noninstrumental and nonmonetary exchanges. Many suggest that procedural justice is more likely to influence obligations associated with relational contracts and, in turn, affect important attitudes toward the company and its authorities (e.g., Folger & Konovsky, 1989; Konovsky & Pugh, 1994). The effects of justice through perceived relational contracts can also be explained using the group-value model of procedural justice (Lind & Tyler, 1988). The basic assumption of the group-value model is that fair interpersonal treatment is valued because it bolsters self-identity or self-worth, and reaffirms attachments to the relationship (Brockner et al., 1992).

Distributive justice can also provide information about one's standing in the group and, in turn, affect one's feelings of perceived respect and self-esteem. The influences of justice variables on perceived relational contracts and group-value processes are most likely to affect intrinsic aspects of satisfaction. Enhanced self-identity, self-worth, perceived respect by, and in turn, pride in the organization are all likely to carry over and affect the degree to which one derives psychological rewards on the job. More specifically, one whose self-worth has been enhanced through fair treatment and/or fair rewards is more likely to derive feelings of achievement and intrinsic satisfaction from the job, hence the positive relationships between justice and intrinsic satisfaction proposed in Figure 1.

Justice has also been found, in many studies, to influence commitment (e.g., Folger & Konovsky, 1989; Konovsky & Croomanzano, 1991). Robinson et al. (1994) suggests that commitment is dependent on maintaining a relationship of consistency and good faith which, in turn, is likely to be associated with justice perceptions. Previous research (e.g., Pearce and Porter, 1986; Steers, 1977) also suggests that employees who believe their contributions are highly regarded are likely to be more committed to the organization.
Both distributive justice and procedural justice have been linked to commitment in prior research (Folger & Konovsky, 1989; McFarlin & Sweeney, 1992). Distributive justice should influence commitment because an equitable distribution of pay raises strengthens the bonds of loyalty between employees and their company (Folger & Konovsky, 1989). Sweeney and McFarlin (1993), suggest that perceptions of fair procedures are likely to cause workers to have faith in the system, which may lead to higher organizational commitment, regardless of outcomes. More specifically, interpersonal treatment is also likely to be associated with one's satisfaction of needs for praise and approval which are important determinants of commitment (Mowday, Porter, & Steers, 1982). In addition, interpersonal treatment should lead employees to feel respected by, and proud of the organization. In turn, they are more likely to identify with, and internalize the values of the organization (Brewer & Kramer, 1996). In sum, as shown in Figure 1, justice is likely to influence commitment both directly and indirectly through its effects on satisfaction.

Satisfaction, Commitment, Attendance Motivation, Performance and Turnover Intentions

Based on past research (Farrell, 1983; Mobley, Horner, & Hollingsworth, 1978; Price & Mueller, 1986; Rhodes & Steers, 1990; Steers & Rhodes, 1978) and as shown in Figure 1, we are proposing that both intrinsic and extrinsic job satisfaction lead to turnover indirectly through their influence on commitment and turnover intentions. Price and Mueller (1986) found that job satisfaction leads to turnover indirectly through satisfaction's effects on organizational commitment and intent to leave. Rusbult and Farrell (1983) proposed a similar model based on social exchange theory, which proposed that job satisfaction affects turnover through its effects on job commitment. The job satisfaction to commitment link is controversial however. Farkas and Tetrick (1989) and Mathieu (1991) found a reciprocal causality between satisfaction and commitment. As shown in Figure 1, we too are proposing these reciprocal paths so that we might clarify if both directions are significant or only the paths from job satisfaction to commitment.

As shown in Figure 1, we are also proposing a link from commitment to attendance motivation (Nicholson, 1977; Steers & Rhodes, 1978). Past research (DeCotiis & Summers, 1987) suggests that commitment affects avoidance behaviors in general, including absenteeism. As a form of withdrawal from the organization, absenteeism is a costly and important factor to consider. Harrison and Martocchio (1998) and Johns
provide excellent discussions of the importance and research on absenteeism.

The proposed link from attendance motivation to turnover intentions, shown in Figure 1, has not been examined closely in past research. However, past research suggests a negative relationship between the two (e.g., Steers & Rhodes, 1978; Sheridan, 1985) and has even used absenteeism as the current withdrawal behavior to explain turnover (Sheridan, 1985) and turnover as a proxy for absenteeism (Steers & Rhodes, 1978).

Past research suggests that performance may also play a role in the turnover process—both as a consequence of commitment and an antecedent to turnover. The organizational commitment - performance link has been hypothesized (DeCotiis & Summers, 1987; Mowday et al., 1982) and was supported by the research of DeCotiis and Summers (1987). They found commitment to be related to three objective measures of performance.

Recent meta analysis (Williams & Livingstone, 1994) also supports the direct influence of performance on turnover. Sheridan (1985) suggests that declining performance can be considered a different outcome associated with the same withdrawal process. As shown in Figure 1, we have hypothesized these same relationships. That is, performance, as a consequence of commitment, is related to turnover through turnover intentions. For this study, performance was assessed using a measure of work group performance since individual assessments of performance were not available. Nevertheless, group performance may be a stronger relationship than individual performance as high group performance should increase cohesiveness, an additional incentive to stay, and in turn, intentions to remain a member of the group.

A question that has lacked attention is how justice perceptions affect group productivity. Justice is likely to affect performance indirectly, through its impact on commitment, as suggested above. However, there is some evidence to suggest that justice may directly influence performance, especially group performance. Tyler, Degoey, and Smith (1996) and Brewer and Kramer (1986) have indicated that fair interpersonal treatment leads to pride and feelings of respect and these, in turn, lead to group-serving behaviors. In addition, Tyler et al. (1996) and Brewer and Kramer (1986) suggested not only does this lead to group identification but also to positive evaluation of the group. Therefore, it appears reasonable to assume that increased perceived fairness, due to fair interpersonal treatment, would be predictive of increased work group performance as judged by a member of the work group. This is consistent with the group-valued model, which offers an identity-based explanation for intragroup relations (Tyler et al., 1996).
Lastly, a great deal of research has supported a link between turnover intentions and actual turnover (Bannister & Griffeth, 1986; Dalessio, Silverman, & Schuck, 1986; Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Hom & Griffeth, 1995; Mobley et al., 1978). This research has indicated that turnover intentions is a better predictor of actual turnover than job satisfaction. Furthermore, consistent with the model proposed in Figure 1, research (Hom & Griffeth, 1995) suggests that job satisfaction is a precursor to intentions to leave which, in turn, is predictive of actually leaving.

METHOD

Participants and Procedure
Participants consisted of 310 full-time employees working for two textile products plants in the southeastern region of the United States. Of these, approximately 59% were males and 41% females, while 63% were white and the remaining 37% were primarily black. Their age ranged from 18–70 years with a mean of 36.7 years. Their educational level ranged from 3–16 years of formal education with a mean of 11.4 years. Their tenure within the plants ranged from .1 to 40.8 years, with a mean of 10 years. Participants were selected at random (33% sampling) from all hourly nonexempt employees. Participation was voluntary with 80% of these selected agreeing to participate. Surveys were administered en masse to participants on the job during working hours by one of the authors of this research. Upon completion, the surveys were collected by the administrator and taken from the organization for processing.

MEASURES

Exogenous Variables
Procedural Justice. Procedural justice perceptions were measured by six items using a 7-point agree-disagree scale. The items used for this construct were based on past research addressing aspects of procedural justice. For example, one item measured the degree an employee felt the supervisor evaluated his or her performance fairly. Another item measured the extent to which an employee had a voice in the performance appraisal process. Research has suggested that opportunity to state one’s side of issues (Dipboye & dePontbriand, 1981), two-way communications, and the opportunity to have one’s views considered have been cited as important facets of procedural justice (Greenberg, 1986). The degree to which the supervisor provided feedback and worked with the employee to help improve performance was measured with two items. The importance of supervisors providing timely and informative feed-
back to employees is an aspect of procedural justice that has been well documented (Gilliland, 1993; Tyler & Beis, 1989). Planning and goal setting by the supervisor have also been found to be important aspects of procedural justice (Dailey & Kirk, 1992; Dipboye & dePontbriand, 1981). The additional items measured general supervisory treatment and support of the employee. The internal consistency reliability (coefficient alpha) of this variable for this research sample was .86.

Distributive Justice. To measure distributive justice, a ten-item, seven-point scale that ranged from “much less than I deserve” to “much more than I deserve” was used. The scale was designed to measure three indicators of distributive justice: internal, external, and system equity perceptions. For example, participants were asked to compare their pay to “others doing the same type of work at your company,” “others in your job category outside your company,” “others in your job category at your company,” and “others doing the same type of work at other companies.” The internal consistency reliability (coefficient alpha) of this variable for this research sample was .79.

Endogenous Variables

Intrinsic Job Satisfaction. This construct was measured by seven items using a seven-point satisfaction scale that ranged from 1 = strongly dissatisfied to 7 = strongly satisfied. The measure of intrinsic job satisfaction included how satisfied the participant was with: the challenge from their work, the job as a whole, feeling of importance from work, variety of things done in job, feeling of accomplishment from work, the work done in the job, and amount of interest in the job. The internal consistency reliability (coefficient alpha) of this variable for this research sample was .89.

Extrinsic Job Satisfaction. Extrinsic job satisfaction was measured by four items with the same seven-point satisfaction scale format used for intrinsic job satisfaction. These items measured how satisfied the employee was with: the benefits received, pension/retirement benefits, health care benefits, and job security. The internal consistency reliability (coefficient alpha) of this variable for this research sample was .85.

Organizational Commitment. Organizational commitment was measured using a six item seven-point agree-disagree scale reported by DeCotiis and Summers (1987). Their research supported that organizational commitment has an effect on motivation, job performance, desire to leave an organization, and voluntary turnover. Commitment was operationalized as, “The extent to which an individual accepts and internalizes the goals and values of an organization and views his or her role in terms of its contribution to those goals and values, apart from any
personal instrumentalities that may attend his or her contribution” (p. 448). An example of an item is, “I am proud of the products and services my company provides to its customers.” The internal consistency reliability (coefficient alpha) of this variable for this research sample was .64.

Attendance Motivation. Attendance motivation was measured by a four-item, seven-point agree-disagree scale developed by Hendrix (1987). The items assessed the desire to stay at home rather than come to work, whether coming to work is important to the employee, if the employee looks forward to coming to work, and the extent to which the employee’s desire to come to work is high. The internal consistency reliability (coefficient alpha) of this variable for this research sample was .76.

Work Group Performance. Work group performance was measured by a four-item seven-point agree-disagree scale described by Hendrix (1984) and used in assessing managerial style and effectiveness by Hendrix and McNichols (1984). The unit of analysis for this variable was the work group and the measure was obtained by computing the average score of all members for each work group. This variable assessed if the work group’s quality and quantity of output was high, if maximum output from available resources was obtained by the work group, and if the work group does an outstanding job when high priority work arises. Hendrix (1984) reported an internal consistency reliability (coefficient alpha) of .82 for this variable based on a sample of 4,786 individuals. The internal consistency reliability (coefficient alpha) of this variable for this research sample was .71.

Turnover Intentions. Employees’ intention to leave the organization was measured with a three-item scale suggested by Mobley (1977) in his research to establish the intervening role of intention to leave between job satisfaction and voluntary turnover. An example of an item is, “I am actively looking for another job.” The internal consistency reliability (coefficient alpha) of this variable for this research sample was .73.

Turnover. Turnover was measured as a dichotomous variable with 0 = indicating individuals who were still on the job and 1 = those who had left within one year after collecting the survey data.

Analysis and Results
The means, standard deviations, and intercorrelation matrix of the variables used in this research are provided in Table 1.

Confirmatory Path Analysis
Confirmatory path analysis was performed using AMOS (Arbuckle, 1997) within the framework presented in Figure 1. AMOS is a general maximum likelihood structural equation estimation procedure similar to
### TABLE 1  Means, Standard Deviations, and Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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</thead>
<tbody>
<tr>
<td>1. Procedural Justice</td>
<td>4.53</td>
<td>1.38</td>
<td>.86</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2. Distributive Justice</td>
<td>3.33</td>
<td>0.73</td>
<td>.19**</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3. Intrinsic Job Satisfaction</td>
<td>5.04</td>
<td>1.10</td>
<td>.53***</td>
<td>.27***</td>
<td>.89</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Extrinsic Job Satisfaction</td>
<td>4.20</td>
<td>1.21</td>
<td>.46***</td>
<td>.43***</td>
<td>.44***</td>
<td>.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Commitment</td>
<td>5.20</td>
<td>0.99</td>
<td>.41***</td>
<td>.28***</td>
<td>.55***</td>
<td>.23***</td>
<td>.64</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6. Attendance Motivation</td>
<td>4.80</td>
<td>1.35</td>
<td>.33***</td>
<td>.19***</td>
<td>.56***</td>
<td>.29***</td>
<td>.40***</td>
<td>.76</td>
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<td>7. Group Performance</td>
<td>5.06</td>
<td>1.02</td>
<td>.38***</td>
<td>.00</td>
<td>.39***</td>
<td>.21***</td>
<td>.44***</td>
<td>.25***</td>
<td>.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Turnover Intentions</td>
<td>3.06</td>
<td>1.51</td>
<td>-.37***</td>
<td>-.34***</td>
<td>-.50***</td>
<td>-.38***</td>
<td>-.42***</td>
<td>-.48***</td>
<td>-.25***</td>
<td>.73</td>
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<tr>
<td>9. Turnover</td>
<td>0.42</td>
<td>0.49</td>
<td>.01</td>
<td>-.09</td>
<td>-.11</td>
<td>.00</td>
<td>-.05</td>
<td>-.11</td>
<td>-.01</td>
<td>.18***</td>
<td>—</td>
</tr>
</tbody>
</table>

*Note: Diagonal values are Coefficient Alpha reliabilities.

***p < .0001
LISREL (Joreskog & Sorbom, 1984) which provides a test of parameter estimates and an assessment of the overall fit of a model. The structural model in Figure 1 was represented by seven linear structural equations. The reason for seven linear structural equations is that one equation is needed for each of the seven endogenous variables.

**Confirmatory Path Analysis Results**

Results based on the AMOS maximum likelihood confirmatory path analysis indicated a poor fit (chi-square = 130.38, df = 19, p value = .000, GFI = .92, AGFI = .82, Bentler’s Comparative Fit Index (CFI) = .85, root-mean-square = .16) of the model to the data. The overall fit of a model to the data is tested by a chi-square goodness-of-fit test, with smaller chi-square values indicting better fits to the data. The chi-square goodness-of-fit procedure tests a hypothesized model against an alternate model where the variables are arbitrarily correlated.

Another fit measure is the goodness-of-fit index (GFI) based on the chi-square distribution which indicates whether a model adequately fits the data. The chi-square distribution is affected by sample size and therefore the goodness-of-fit index (GFI) and the adjusted goodness-of-fit index (AGFI) are generally considered to be better measures of goodness-of-fit (Joreskog & Sorbom, 1984). The AGFI is the GFI adjusted by the degrees of freedom use in the analysis. The AGFI is also a measure of the relative amounts of variances and covariances that are jointly accounted for by a model. Unlike the chi-square test, the AGFI and the GFI are relatively robust over departures from normality (Joreskog & Sorbom, 1984). Another fit index is Bentler’s Comparative Fit Index (CFI). The GFI, AGFI, and the CFI can vary between 0 to 1, with higher values indicating better fit of the model to the data under analysis. The root-mean-square residual (RMSR) is a measure of the residual variances and covariances and it helps in assessing the fit of data to two different models. A lower value indicates a better fit.

**Exploratory Path Analysis**

Exploratory path analysis was performed next due to the poor fit of the hypothesized model using confirmatory path analysis. Half of the sample (n = 155) was used in developing a revised model and then this model was tested against the remaining “hold-out” group (n = 155). When performing exploratory path analysis, the paths found to be non-significant were deleted and the paths that would increase the model fit, as indicated by AMOS’s modification indices, were added to create the revised model (Figure 2). Generally, the modification indices were used to make revisions only if the changes were consistent with prior research and theory.
Results of the exploratory path analysis on half of the sample did provide a much better fit (chi-square = 22.76, df = 18, p = .20, GFI = .97, AGFI = .92, Bentler’s Comparative Fit Index (CFI) = .99, root-mean-square = .05) of the model to the data and did provide a logical revised model (see Figure 2). In addition, the critical ratios (chi-square/df) for all paths shown in the revised model were statistically significant (i.e., had critical ratios > 2). The model was then tested against the “hold-out” sample, which also provided a good fit of the model to the data (chi-square = 22.59, df = 18, p = .21, GFI = .97, AGFI = .92, Bentler’s Comparative Fit Index (CFI) = .99, root-mean-square = .06).

Examination of the revised model reveals that 13 of the 17 hypothesized paths in Figure 1 were supported. As predicted, both procedural justice and distributive justice were positively related to intrinsic and extrinsic job satisfaction and organizational commitment. In addition, procedural justice was positively related to group performance. Also consistent with our hypotheses was the positive relationship between intrinsic job satisfaction and organizational commitment. As expected, commitment was directly related to group performance and attendance motivation and negatively related to turnover intentions. Attendance motivation, in turn, was negatively related to turnover intentions. Last of all, turnover intentions was related to only one variable, actual turnover. The higher the turnover intentions the higher was turnover.

DISCUSSION

This is the first research, to our knowledge, that links justice to the broad categories of intrinsic and extrinsic job satisfaction, and the first to examine this distinction in a model of turnover. The results suggest that both procedural justice and distributive justice affect employee intrinsic and extrinsic job satisfaction. Interpersonal treatment appears more strongly related to intrinsic job satisfaction than extrinsic job satisfaction. This finding is consistent with the group-value model of procedural justice, which suggests that procedural justice, and especially interpersonal treatment, is more likely to have the noninstrumental effects that are inherent in intrinsic satisfaction. Intrinsic job satisfaction, in turn, had direct effects on commitment, attendance motivation, turnover intentions, and indirect effects on actual turnover through turnover intentions and attendance motivation.

Overall, this research suggests that interpersonal treatment is directly predictive of group performance. It is indirectly predictive of commitment, attendance motivation, and turnover through its effect on intrinsic job satisfaction. In other words, ensuring positive justice per-
ceptions should result in employees with higher levels of intrinsic job satisfaction and commitment who, in turn, will have a strong desire to perform well within a group, attend work, and remain with their organization.

In this study, intrinsic, as opposed to extrinsic job satisfaction, was the prominent intervening role connecting justice to turnover and other employee behaviors. Failing to investigate the role of intrinsic job satisfaction in turnover research may lead to inconclusive or incomplete results regarding the role of satisfaction as a consequence of justice and an antecedent of turnover. For example, a recent study (Martin & Bennett, 1996) examined the relationship between satisfaction and commitment and concluded that the two were independently related to justice variables. However, their research addressed only extrinsic aspects of satisfaction. Our results are consistent with their findings with respect to extrinsic satisfaction. Intrinsic satisfaction, on the other hand, played a prominent intervening role in the relationship between justice perceptions and commitment in our study.

Some of our proposed relationships were found to be insignificant. For example, the lack of a performance to turnover relationship might be explained by the fact that we used a group measure of performance and an individual measure of turnover. When using group data the variance associated with individual measures is lost. Furthermore, we did not find a significant relationship between extrinsic satisfaction and commitment. The failure to find this link may be attributable to our use of a more affective, as opposed to calculative or economic measure of commitment. However, the use of this measure is supported by research that stresses the advantages of this type of commitment (see, for example, Allen & Meyer, 1990).

The unexpected direct effects of distributive justice on turnover intentions might be explained by individuals’ anticipation that various types of injustice will change in the future. That is, turnover intentions are likely to be affected not only by perceptions of current outcomes but also by expectations about future outcomes. Some components of justice are likely to be seen as more stable than are others. Employees may be more likely to perceive that interpersonal treatment, as opposed to formal procedures or pay outcomes, will change with changes in supervisors or managers (which may use various procedures and exhibit different treatment levels) during their tenure with an organization. In addition, research (Carrell & Dittrich, 1978; Goodman & Friedman, 1971; Weick & Nesset, 1968) suggests that the comparison processes used to evaluate distributive justice are likely to be made with respect to external referents (Goodman, 1974; Summers & DeNisi, 1990). Since
opportunities in the external environment may play an independent role in turnover intentions, we might expect distributive justice to have significant direct effects on turnover intentions.

The only direct effect on turnover was by turnover intentions which appeared to be modest but significant (.19). Turnover was coded as 0 or 1 and, therefore, resulted in point-biserial correlations with other variables. The question of concern here is whether “turnover” is truly a dichotomous variable or only a dichotomization of a continuous variable. McEvoy and Cascio (1987) have noted that turnover, “is a dichotomization of the continuous variable called tenure” (p. 750). Given enough time, all individuals will leave an organization. To dichotomize a variable such as tenure restricts its range of time to a subset of months. Therefore, a point-biserial correlation (which is used for truly dichotomized variables) is not as appropriate. Instead, a biserial correlation (used when a continuous variable has been dichotomized) may be more appropriate. In addition, as noted by Steel, Shane, and Griffeth (1990), and Steel, Hendrix, and Balough (1990), base rates (i.e., the number of voluntary leavers divided by the total sample size) affect criterion variance (e.g., turnover). In addition, point-biserial correlations systematically underestimate conventional correlations computed on continuous data. The upper bound of a point-biserial r is .80 (Thorndike, 1978) when the number of leavers equals the number of stayers. When the imbalance between leavers and stayers increases, the ceiling decreases. Therefore, Steel et al., (1990) recommend correcting turnover statistics for variance restriction (due to the leavers vs. stayers imbalance) and then converting the resulting corrected point-biserial correlations to biserial correlations. Correcting the turnover correlation in this study, which was .19, results in a much higher relationship between turnover intentions and actual turnover. Specifically, the value would increase from .19 to .48. Therefore, what appears to be a modest relationship is probably much larger.

Even though this research is promising, a number of limitations are worth noting. First, participants were not representative of workers in general. The participants were from two textile product plants in the southeastern United States. This sector has been neglected in past research and, therefore, is in need of the knowledge provided by research. Furthermore, we believe this sample makes a contribution given the important role of manufacturing in the economies of the world.

A second limitation to this study is that the revised model was based on an exploratory analysis. Although exploratory analysis was appropriate at this stage of research, since new variables were being investigated for the first time and a “hold-out” sample was used for cross-validation,
there is a need in future research to perform confirmatory analysis with different samples to add support to the results found here. Finally, although the turnover data were lagged, all other measures were taken at the same time. Therefore, causality cannot be established. Future research should focus on a time-phased longitudinal design to add support to these findings.

To date there has been little research to provide a comprehensive model of the effects of procedural and distributive justice on factors that are predictive of turnover. Therefore, this research makes a contribution to the literature by providing a model for future research that incorporates both intrinsic and extrinsic job satisfaction and attendance motivation, another construct not examined in prior justice research. Future efforts involving justice and turnover research should continue to focus on the potential role of intrinsic satisfaction. As shown in this study, intrinsic satisfaction may actually play a more prominent role than extrinsic satisfaction.

REFERENCES


