

# Group Attributional Style: A Predictor of Individual Turnover Behavior in a Manufacturing Setting

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*Separate research streams have examined (1) teamwork and (2) turnover. We examined the interaction of group beliefs on team member turnover behavior. We hypothesized that groups with more pessimistic attributional styles would experience greater turnover than optimistic attributional style groups. This effect would be independent of influences of group potency and social identity. A study of fifty intact work teams in a manufacturing facility was conducted, with special attention devoted to recommendations for enhancing the validity of multilevel research. The results supported the hypotheses. Implications for attributional processes, shared team mental models, and social capital are discussed.*

Work teams and groups continue to receive increasing attention in management theory, research and practice (Goodman, Ravlin & Schminke, 1990; Guzzo & Dickson, 1996; Hackman, 1990; Jackson, Stone & Alvarez, 1993; Labianca, Brass & Gray, 1998; Liden, Wayne & Bradway, 1997). To date, this research has identified antecedents of group effectiveness (Earley & Mosakowski, 2000; Gibson, Randell & Earley, 2000; Lau & Murnighan, 1998; Stevens & Campion, 1999) and more often has examined resultant performance (Hollenbeck et al., 1998; Jung & Avolio, 1999; Sparrowe et al., 2001). However, groups are “a collection of individuals with a definite

sense of membership and shared beliefs” (Bar-Tal, 1990, p. 41). Those beliefs, in turn, guide group behaviors that relate to collective issues. Only recently has attention specifically focused on the formation process of group beliefs (Eby et al., 1999; Gibson, 1999; Guzzo et al., 1993) and their implications for organizational outcomes (Kirkman & Shapiro, 2001).

Group beliefs are neither absolutely an aggregation of individual characteristics nor a set of wholly group-level characteristics (Crocker & Luhtanen, 1990; Guzzo et al., 1993; Sayles, 1958). Rather, as members interact, they develop a collective sense of their role requirements, behavior patterns, and the connectedness of their actions (Weick & Roberts, 1993). Thus, individual attributes and the group’s contextual characteristics meld together to create a team mental model (Eby et al., 1999; Klimoski & Mohammed, 1994) of shared expectations and rules (Hackman, 1990) that guide future action. It is important to note these “shared cognitions” need not be identical among group members. However, there must be a significant overlap of understanding among members (Earley & Mosakowski, 2000; Waller et al., 2001) so that they “hold compatible models that lead to common expectations” (Klimoski & Mohammed, 1994, p. 421). In particular, while there is much debate about the nature of shared mental models (Klimoski & Mohammed, 1994), there is consensus that they are “shared understandings of task demands, environmental contingencies, and appropriate behavior” (Eby et al., p. 367). Thus, they are cognitive frameworks with motivational potential.

While studies of group processes have examined a variety of topics (e.g., teamwork expectations, group efficacy, social identity, communication), we propose that one area of shared cognition thus far overlooked that impacts subsequent behavior is attributional style—the manner in which groups collectively interpret good and bad events relevant to the group. Numerous studies in the behavioral sciences have examined the possibility that certain individuals favor some explanations over others for different events (Peterson, Buchanan & Seligman, 1995). That is, rather than independently evaluating the cause of each experience, over time they develop a consistent cognitive orientation and interpretive framework. Furthermore, an individual’s future expectations (e.g., self-efficacy) and behavior (e.g., expended effort) are significantly influenced by their perceptions and explanation of past events (Luthans, 2002a; Stajkovic & Sommer, 2000; Weiner, 1986). Although the major interest in attributional style has been at the individual level of analysis (Martinko, 1995), some work has been done to extend attribution theory to group settings, especially in sports (Zaccaro et al., 1987; Rettew & Reivich, 1995). This stream suggests that when individuals work in groups, they also generate shared understandings of the relationship between group attributes and group outcomes (Hewstone, Jaspair & Lalljee, 1982).

It should be noted that attributional style is specifically a cognitive process (Seligman & Csikszentmihalya, 2000) rather than an affective disposition like positive and negative affectivity (George, 1990; Judge, Locke & Durham, 1997). Dispositions may become more state-like upon accumulation of experience (Chen, Gully & Eden, 2001), but do not always influence actual behavior (Fishbein & Ajzen, 1975). For example, team member negative affectivity does not influence teamwork expectations

(Eby et al., 1999). Attributional style, however, is a cognitive process shown to be motivational (thus impacting behavior) even when manifesting different emotions (Weiner, 1986). Similar to the distinction Chen et al. (2001) makes between self-efficacy and self-esteem, attributional processes involve motivational evaluations of self in the context of internal and external criteria, whereas self-esteem is an evaluation resulting in an affective orientation towards self based on external characteristics. These unique implications of attributional style for group behavior relative to other group dynamics in the extant research further suggest the need for study.

We investigated the implications of attributional style in the context of turnover behavior. Employee turnover is frequently cited as the most prominently studied and among the most practically relevant topics in organizational behavior research (Luthans, 2002b; Robbins, 2003). Recent discussions have gone beyond indirect cost considerations and have demonstrated the significance of turnover on firm performance (Guthrie, 2001). These efforts seem equally divided between examinations of the process of an individual voluntarily leaving an organization (Lee et al., 1999) and the impact of involuntary turnover events like downsizing (Brockner et al., 1987; Mishra & Spreitzer, 1998). While some suggest teams should strengthen an individual's attachment to an organization (Kirkman & Shapiro, 2001), recent work on social networks and social capital indicate that an individual's turnover behavior may be greatly (and negatively) influenced by the turnover behavior of relevant others (Dees & Shaw, 2001; Mollica & DeWitt, 2000; Shah, 2000). Thus, we suggest that an individual's turnover behavior is influenced by the collective explanation of the group's experiences, and that a shared mental model of pessimistic explanations will create a snowball effect (Krackhardt & Porter, 1985) on turnover.

### Attributional Style

Attribution theory is concerned with how individuals perceive causes of events and the consequences of those perceptions. There is no single theory of "attribution" (Kelley & Michella, 1980; Martinko, 1995). However, research performed by Heider (1958) on how people explain their own actions and those of others' is widely considered the birth of attribution theory. Subsequent research shows beliefs about causation affects mood, expectations, and subsequent behavior (Stajkovic & Sommer, 2000; Weiner, 1986). Weiner's (1986) theory of achievement motivation deals with how individuals explain their successes and failures and how this impacts subsequent mood and behavior (self perspective). Kelley (1967) and Green and Mitchell's (1979) models are concerned primarily with how observers assign responsibility for the outcomes of others. The application of attribution theory to group settings would suggest members of the group also generate a naive theory of the relationship between group characteristics and group outcomes. The key to understanding the group explanation of good and bad events is to be found in the ongoing interaction process among the group members. While these group level effects have been postulated (Brown, 1984), they have rarely been empirically examined.

One specific stream within the attribution literature—"explanatory style"—examines "one's tendency to offer similar sorts of explanations for different events"

(Peterson, Buchanan & Seligman 1995, p. 4) or, simply put, the habitual way in which people explain the favorable and unfavorable events that happen to them (Peterson & Seligman, 1984). For example, an individual who habitually explains bad events as “I caused it,” “It’s an ongoing thing and everything else will go wrong” (i.e., internal, stable, and global), is labeled as having a “pessimistic” explanatory or attributional style. In contrast, one who attributes failure to external, unstable, and specific causes is labeled as having an “optimistic” explanatory style. Research on learned helplessness shows an individual with a “pessimistic” style is more likely to exhibit helplessness deficits when confronted with bad events than individuals with an optimistic style (Seligman et al., 1979; Peterson, 2000; Seligman & Schulman, 1986), which will likely lead to dysfunctional consequences in terms of future behavior and performance (Luthans, 2002a). At this point, we should mention that what has been called “explanatory style” in the psychology research has been referred to as “attributional style” in the sparse management literature (Furnham, Sadka & Brewin, 1992; Martinko, 1995) on the topic. From here on, we will use the latter term.

There is a prolific body of literature showing that an individual’s attributional style has significant effects on their mental and physical well-being, task persistence, and performance success (Peterson, 2000), and helped to launch the growth of the research stream called ‘positive psychology’ (Seligman & Csikszentmihalya, 2000). To date, attributional style has been related to such diverse outcomes as physical illnesses (Peterson, Seligman & Vaillant, 1988), anxiety (Seligman et al., 1979), academic performance (Peterson & Barret, 1987), burnout (Wade, Cooley & Savicki, 1986), work exhaustion (Moore, 2000), low self-esteem (Kao, Nagata & Peterson, 1997), hardiness (Hull, Van Treuren & Propson, 1988), and workplace aggression (Douglas & Martinko, 2001). Indeed, a meta-analysis of over 100 studies supported the proposition that depression is positively related to internal, stable, and global attributions for failure and external, unstable, and specific attributions for success (Sweeney, Anderson & Bailey, 1986). Findings from two decades of research have shown that an individual’s conclusions that outcomes were uncontrollable were associated with cognitive, motivational, and emotional deficits (Abramson, Seligman & Teasdale, 1978; Seligman & Csikszentmihalya, 2000). The motivational deficits are a result of the expectation that responses are in vain (Peterson, 2000). The cognitive deficit is comprised of difficulties in learning, given that one’s responses are not seen as producing outcomes (Hjelle, Busch & Warren, 1996). Finally, the depressed affect (e.g., frustration or sadness) is a consequence of believing outcomes are independent of responses (Garber, Miller & Abramson, 1980).

Attribution theory has long received significant attention in both the clinical and organizational research (Knowlton & Ilgen, 1980; Liden & Mitchell, 1985; Heneman, Greeberger & Anonyou, 1989; Ployhart & Ryan, 1997). Attributional style, however, has only recently garnered the level of attention in organizational behavior that approaches the interest shown in the clinical and social arenas (Furnham et al., 1992; Judge & Martocchio, 1996; Moss & Martinko, 1998; Wunderley, Reddy & Dember, 1998). A few relevant studies have examined productivity and turnover among insurance sales staff. For example, Seligman and Schulman (1986), using a sample of 94 experienced life insurance sales agents, found that individuals who interpreted

failure as internal, stable, and global were less persistent, produced less, initiated fewer sales attempts, and quit more frequently. Corr and Gray (1996) replicated these findings in a study of an insurance sales staff in the U.K.

The focus of attributional style research has thus far examined individual processes and implications. We reiterate the importance of the work team and repeated calls for research to examine group-level influences on theories traditionally examined at the individual level of analysis (Eby et al., 1999; Pelled & Xin, 1999; Yammarino & Dubinsky, 1990). Prior research has demonstrated the ease with which an individual identifies with a group. For example, a nominal cue like wearing similar clothing can cue a significant in-group categorization effect (Dovidlio et al., 1995). Once perceiving himself or herself as a member, the individual is prone to adopt similar attitudes (George, 1990; Salancik & Pfeffer, 1978) and personalize the group's success and failures (Ashforth & Mael, 1989). Given the importance of the individual being in sync with the group on key coordination and perception issues, if the group is to be effective (Waller et al., 2001), it seems reasonable to determine if psychological withdrawal (e.g., being in a bad mood) effects found for individuals (Judge & Martocchio, 1996; Pelled & Xin, 1999) would also occur at the group level.

While some attribution work has looked at athletic performance in sports teams (Rettew & Reivich, 1995), attributional style research at the group level is scant. This study seeks to determine if a construct of group attributional style exists. We define group attributional style (GAS) as *the group's habitual and collective manner of explaining the causes of bad and good events happening to them*. As discussed, groups create shared cognitions and collective mental models through their interactions (Earley & Mosakowski, 2000). We again propose that one set of beliefs involves the collective sense, making governing the explanation of good and bad events happening to the group. Extrapolating from the existing research, members engaged in pessimistic attributional style discussions may share feelings of helplessness. This group will experience and collectively amplify/reinforce debilitating deficits that will hinder efforts to correct or improve their activities. Consequently, members of pessimistic groups will be more inclined to withdrawal, express thoughts of quitting, and intentions to search for alternative employment. When one member quits to take a job elsewhere, others may reevaluate their job status (Dess & Shaw, 2001; Mowday, 1981) and likely quit as well. Studies (Lee et al., 1999; Mollica & DeWitt, 2000; Sheehan, 1995) empirically show this shock may lead to potential turnover even if the individual is satisfied with their current position. We propose this effect will be more pronounced in teams given the more active discussions and higher sense of collective expectations. Therefore:

*Hypothesis 1: A pessimistic group attributional style will lead to higher turnover than turnover in groups characterized by an optimistic attributional style.*

### **Accounting for the Effects of Other Group Beliefs**

Group attributional style (GAS) will not occur in a vacuum (Klein & Kozlowski, 2000). In particular, we expect the role of GAS to operate in conjunction with other

group beliefs that have been demonstrated to influence shared mental models (Eby et al., 1999). In particular, research has demonstrated that group potency and social identity produce significant impacts on group dynamics. For example, while attributional style will result in the collective assessment of an event's causality, future behavior will also be influenced by the confidence the group has that they can successfully mobilize the necessary subsequent resources and tactics. So, whereas, attributional style concerns "Why did it happen?" and "Do we want to do something about it?" we present group potency as the "Can we do something about it?" dynamic. Furthermore, the extent to which the individual is emotionally attached to the particular group will also add to the desire to remain or turnover. This we consider the "do I care?" or *social identity dynamic*.

### *Group Potency*

The efficacy literature has extensively focused on individual self-regulating behaviors (Bandura, 1997). However, since the early 1980's, attention has also been given to team-and-group performance beliefs. This trend started with the concept of team-potency, which was defined as "a shared conception of group ability across situations" by Guzzo et al. (1993, p. 87). This definition shares elements of and in fact, is often cited as a precursor to the term *shared mental models* (Eby et al., 1999). There is empirical evidence of the relation of potency to performance related criteria (Gibson, 1999). This research stream demonstrates that in different settings, group beliefs have a significant effect on different group outcomes. Subsequent work on group potency more often uses the term "group efficacy," defined as the collective belief of a group that it can successfully perform a specific task (Gibson et al., 2000; Lindsley, Brass & Thomas, 1995).

Similar to discussions of shared mental models described above, this belief is not the simple sum of group members' efficacy beliefs but an "emergent" expectation generated through collective sense making (Bandura, 1997). By emergent, we mean the process of member interactions and accumulated experiences that lead to a framework of shared cognition. The empirical evidence shows this collective (often called the group discussion) approach best predicts group outcomes (Gibson et al., 2000; Little & Madigan, 1997). By suggesting that collective efficacy is deeply grounded in self-efficacy, Bandura (1997) was among the first researchers to see the connection between performance beliefs across the two levels of analysis. In an attempt to discriminate between efficacy at the individual and collective levels, Bandura stated:

Linking efficacy assessed at the individual level to performance at the group level does not necessarily represent a cross-level relation. An assessment focus at the individual level is steeped in processes operating within the group. Nor does a focus at the group level remove all thought about the individuals who contribute to the collective effort (1997, p. 478).

Consistent with past research (Silver, Mitchell & Gist, 1995), we expect turnover behavior to be further influenced by the group's collective feeling of potency. Teams

that have a strong sense of potency are less likely to experience the sense of helplessness that would lead to turnover. Teams with low potency are likely to create an environment that amplifies feelings of helplessness, especially related to assembling the skills necessary to succeed. As a result, the effect of potency can potentially mask attributional dynamics such as members relieving their dissonance by leaving the organization (Abraham, 1999).

*Hypothesis 2: High potency groups will experience a lower rate of turnover than low potency groups.*

### *Social Identity*

Another important group characteristic that may detract from the effect of group attributional style is the level of member identification with the group. Individuals define themselves and others not simply in interpersonal terms, but also in terms of their various category memberships (Hewstone et al., 1982) and group or organizational affiliations (Tajfel & Turner, 1979). As defined by Tajfel (1982), social identity is “that part of an individual’s self-concept that derives from their knowledge of their membership in a social group (or groups) together with the value and emotional significance attached to that membership” (1982, p. 2). Turner (1982) stressed that cohesiveness is the concept of belonging based on affection, whereas social identity is related to the member’s cognition regarding criteria describing the group’s characteristics. Social groups possess specific behavioral expectations, and this shared understanding of group characteristics and expectations is again relevant to the definition of shared mental models.

Individuals with strong identification tend to exert more effort towards group objectives and engage in more prosocial behavior (Mael & Ashforth, 1992; Kirkman & Shapiro, 2001). Indeed, one can extrapolate from the social capital literature that individuals with strong referent identity tend to build more supportive networks, cooperative work relationships, and higher levels of trust, all of which would reduce one’s motivation to leave the organization (Nahapiet & Ghoshal, 1998). Contemporary work on diversity has emphasized the need to focus on cognitions of salient work-related characteristics rather than or in addition to emotional reactions to demographic attributes. Other work on social identity theory (Ashforth & Mael, 1989; Tajfel & Turner, 1986) describes the process by which members will seek to distinguish the group, and by which members’ strength of identification with and ego-enhancement from the group influence intentions to remain.

Thus, in spite of a pessimistic interpretation of group experiences, a high identification with the group itself may counter turnover. That is, the group itself provides a source of support that outweighs experience generated image concerns.

*Hypothesis 3: Groups with strong social identity will experience lower turnover than low identity groups.*

At this point it might be prudent to restate Hypothesis 1 as follows:

*Hypothesis 1: A pessimistic group attributional style will lead to higher turnover than turnover in groups characterized by an optimistic attributional style, independent of the effects of group potency and social identity.*

## Methods

### *Sample*

The sample consisted of teams drawn from a major division of a large manufacturing operation located in the Midwest. This division was responsible for mail inserting for large financial institutions. The teams worked around mail inserting machines and had to collectively coordinate several activities in order to minimize performance defects; for example, loading and unloading of different materials (e.g., envelopes, ink, paper statements), synchronization with machine speed, maintenance and repair, general work area cleanliness while maintaining or repairing the machines. Each team had 3 or 4 members, a size determined by industrial engineering to be most effective for the technology. No difference due to group size was observed for any of the study variables. These were permanent groups that spent a considerable amount of time working in close proximity and socializing with each other during breaks and lunch. Pooling of effort from the group members was an important factor for the team performance. Thus, the sample meets the proximity, similarity, interdependence, and interaction criteria to be considered a team.

Data were retained only for employees where a team's complete membership completed surveys. This resulted in 180 employees comprising 50 wholly intact teams used in the actual analyses. Age was measured categorically. The median and most frequent response was "3" representing the individual as being in the 26-30 year old age range. Average organizational tenure was 22.7 months, and 50% of the respondents were female. A comparison of the demographic composition of the whole company and the demographics of the investigated division showed the sample that completed the questionnaires was representative of the plant population. Therefore, we are confident there was no sampling bias.

This organization was selected for several expected contributions to validity. For one, performance was dependent on both human and technological inputs. The measure of performance was the number of envelopes zip-sorted in a month. Counters attached to the employee machines tabulated completed envelopes. Managers recorded group membership and attendance. While a Within-and-Between Analysis (WABA) analysis determined that performance was more variable across groups than within ( $E = 2.06$ , significant at 150 [ $\alpha < .01$ ]), the variance in performance was quite restricted (3%). Indeed, an ANOVA showed no difference across teams, and a regression of the study variables on performance was also not significant. This adds to the power of the design as group beliefs and subsequent behavior will be more a function of differences in collective interaction and perceptions than a product of actual productivity differences.

Finally, the group size provided reasonable opportunity to satisfy Bar-Tal's (1990) four requirements for effectively measuring group beliefs. The ability to survey the

entire group membership addressed the first two requirements that the constructs reflect the group as a whole, and that members agree with regard to the construct (typically addressed by scale construction). The use of WABA techniques would help address the other two requirements concerning group differentiation and within-group processes. Finally, group beliefs are more predictive of group outcomes when based on group interaction processes (Gibson, 1999; Gibson et al., 2000); in this case group discussions of many topics were promoted by the fact that the groups worked together around the machines.

### *Procedure*

Respondents were invited to participate in the study as part of an ongoing project within the context of reducing turnover at the organization level. The survey instrument was directly distributed and collected by the senior author. Completion of the survey required approximately 30 minutes and was done on company time. Respondents were given the choice of completing the survey at the start or end of their shift. All participants were provided with explanations of the general purpose and nature of the study prior to responding. Confidentiality of individual responses was emphasized in the instructions, and it was stated that only the summaries of the research would be provided to management.

## **Measures**

### *Independent Variables*

*Group Attributional Style.* Several instruments have been developed to assess attributional style at the individual level: the Organizational Attribution Scale Questionnaire (OASQ) developed by Kent and Martinko (1995), the Attribution Style Questionnaire (ASQ) adapted by Peterson et al. (1988), and the Occupational Attributional Style Questionnaire developed by Furnham et al. (1992). Each is worded specific to a certain population or application. The Group Attributional Style measure (GASQ) used here was based on the Kent and Martinko measure, as it has shown strong psychometric properties and is specifically worded to tap work-related events. The items were modified to reference group-level opinions in order to follow recommendations for considering issues related to research crossing multiple levels of analysis (Eby et al., 1999; House, Rousseau & Hunt, 1995; Klein, Dansereau & Hall, 1994). In particular, shifting the item referent from the individual to the group tends to enhance the level of within group agreement and between group variance required to alleviate construct validity threats due to level of analysis (Klein & Kozlowski, 2000).

The measure was presented to the respondents with the following directions: Read each of the situations and imagine a time it happened to you and to your group. Even if it is unlikely that the situation will actually occur, still imagine it is happening and respond to the questions. Based on what you know about yourself, your group, and the organization in which you are employed, write down what you think is the one major cause of the event in the space provided

(e.g., bad luck). Respond to each of the items that follow the event by circling the number on the scale which best describes the cause you identified.

Following the instructions were the 12 modified events from the Kent and Martinko instrument: 6 good and 6 bad outcomes. A sample reworded negative event was “Members of your group have great difficulty in getting along with each other.” A sample reworded positive event was “All the feedback your group has received from your supervisor lately concerning the group’s performance has been positive.” Consistent with recommendations for usage, following each event was a space to provide their narrative cause then parallel questions along the three dimensions of internality, stability, and globality. Response anchors used a 7-point Likert format (e.g., 1 = completely external to the group; 7 = completely internal to the group).

Given the high intercorrelations among the three attributional dimensions in past research, Reivich (1995) recommends the use of composite scores for determining attributional style (Corr & Gray, 1996; Seligman & Schulman, 1986). Again following Kent and Martinko’s recommendations, the composite negative and the composite positive attributional style scores were calculated first. These scores represent the combined mean responses across the three dimensions for the 6 events in each category. Next, the total score (CPCN) is obtained by calculating the composite positive minus the composite negative scores. Higher scores reflect a more optimistic attributional style. Past research (Peterson & Seligman, 1984; Seligman & Schulman, 1986; Reivich, 1995; Corr & Gray, 1996) indicates the CPCN is the most valid empirical predictor of attributional style at the individual level of analysis. Thus, we expect the Group-CPCN to be a valid extrapolation to the group level of analysis. The Cronbach alpha for the measure was .76.

*Group Potency.* We assessed collective self-efficacy with the eight-item scale developed by Guzzo et al. (1993). Other researchers have used different methods to measure group-efficacy. For example, Gibson (1999) employed a method called “group discussion procedure,” where a group is presented with a rating scale to use in forming a single consensus response to a question about its sense of efficacy with regard to a given task. Limitations of this method include the inability to calculate statistical indicators of agreement (Gibson, 1999), and that group interaction during the process of arriving at an efficacy estimate may change a group’s efficacy to the point that it is unrealistic (Bandura, 1997). Even so, Gibson et al. (2000) has shown potency measures like Guzzo’s to be unidimensional and sound and furthermore, that the two measures are equally sound. While the potency measure was shown to have lower predictive validity (Gibson et al., 2000), we propose the nature of the workplace mentioned above might exploit both approaches. These individuals work side-by-side and discuss several topics (including work), so it is highly probable that each individual’s response reflected the group’s attitude, thus providing the “referent shift consensus” necessary for crossing levels of analysis (Chan, 1998).

Scale items included “My group has confidence in itself,” “My group expects to have power around here,” and “My group believes it can become unusually good at producing high-quality work.” Group members completed the eight items using a ten-point format (1 = To no extent, 3 = To a limited extent, 5 = To some extent, 7 = To a

considerable extent, and 10 = To a great extent). The Cronbach alpha was .91.

*Social identity* was measured using a modified version of the Mael and Ashforth (1992) six-item organizational identification scale. Items included “If someone were to criticize this group, it would feel like a personal insult,” “When I talk about this group, I say ‘we’ rather than ‘they,’” and “If someone were to praise this group, it would feel like a personal compliment.” Participants were asked to indicate their agreement with each statement on a five-point scale (5 = To a very great extent; 1 = To no extent). Mael and Ashforth (1992) reported a reliability of .79 and the reliability for this study was an acceptable .70.

### *Dependent Variable*

*Turnover Behavior.* Organizational records were examined for the 6-month period following the study to identify study participants who terminated their employment. Unfortunately, we did not obtain sufficient information on date of turnover and thus, could not perform a stronger test using survival analysis.

Significant discussion has recently focused on methods for measuring turnover, as well as potential flaws in past data collection efforts. For example, turnover is one form of role transition (Ashforth, 2001) and some transitions can mask withdrawal behaviors. Transferring jobs or geographic relocation within an organization is a more acceptable way to leave an unsatisfactory position than quitting, especially if opportunities in other organizations are limited. Similarly, turnover is defined as “the entire cycle in organizations of entries and leaving” (Bluedorn, 1982, p. 78-79) and again includes transfers, promotions, and relocations. Given this, and that the constructs examined here classify as “shared team properties” that are influenced by the members (Klein & Kozlowski, 2000, p. 215), we utilized a more elaborate operationalization of turnover.

Exit interview data listed the reason for turnover. For example, some left to return to school, some were fired, some had immigration problems, and some were transferred or requested transfers to other departments. Seven categories, including one for still employed, were created. Consistent with the literature on voluntary turnover (Lee et al., 1999), these causes were coded into three categories: (1) still employed, (2) voluntary turnover or school, requested transfer, and (3) involuntary turnover—fired, immigration. As described later, since the dependent variable is categorical, logit regression techniques were used to analyze the data. One analysis was conducted to examine those who turned over (coded as 0) versus those who stayed (coded as 1), while a second analysis was performed to examine those who left voluntarily (coded as 0) versus those who left involuntarily (coded as 1).

## **Results**

### *Test of Group-Level Effects (WABA)*

Discussions of multilevel research provide cautions for examining the impact of group level constructs on individual level variables (House et al., 1995; Klein & Kozlowski, 2000). In this study, we examined how group effects may influence actual turnover behavior at the individual level. Beyond the climate and intent created by discussion, the mere act of a friend

leaving is a significant predictor that the individual may also leave (Krackhardt & Porter, 1985) since closeness (e.g., social identity) is a form of friendship.

In order to justify the group level of analysis, it is important to demonstrate homogeneity within the group and further, that two people within the same group are more similar than two people who are members of different groups (Bar-Tal, 1990; Florin et al., 1990). WABA was conducted in order to verify the existence of group level effects. This technique uses the within-group correlation and the between-group correlation (called “eta”) to determine if there is more variance among members within a group than variance accounted for by differences across groups. The squared eta’s ( $\eta^2$ s, similar to  $R^2$ ) are tested relative to one another with F-tests of statistical significance and an E-test of practical significance, making it a more robust measure of group level effects (Klein & Kozlowski, 2000). The cutoff value to conclude construct validity at the group level is E larger than 1.3 for the 15° angle test, comparable to  $\alpha = .01$  (Dansereau, Alutto & Yammarino, 1984). Values less than .77 indicate individual differences are greater than group effects, and that individual-level data cannot be aggregated. Cutoff scores for the F-tests are obtained from critical value tables and determined by the degrees of freedom ( $n - J$  and  $J - 1$ ). WABA is a useful and one of the more rigorous tools for determining appropriate levels of analysis in multilevel research (Klein & Kozlowski, 2000). However, George (1990) points out one should not expect to find extremely large differences across groups when all members of a group belong to the same organization and are performing the same task.

Even so, the results of the WABA indicated group level effects for these data. The E scores for the three independent variables (1.42 to 1.60) all surpassed the 15° value for practical significance. Furthermore, the F ( $df = 130, 49$ ) scores (2.05 to 2.09) surpassed the bracketed critical values of 1.84 ( $df = 100, 48$ ) and 1.76 ( $df = 200, 50$ ) listed in Appendix A for  $\alpha = .01$  (Dansereau et al., 1984). Thus, variation between groups was significantly greater than the variations within groups for the variables of interest, so one can conclude that there is an effect of group membership on the measures. Therefore, we can conclude the existence of collectively shared mental models within these groups. Given this, the remaining analyses and testing of hypotheses were performed using data aggregated to the group-level. Finally, examination of the data suggested no violations of normality.

### *Descriptive Statistics*

Inspection of the correlation matrix reveals this organization experiences a moderately high rate of turnover (annualized 60%) that varies across the groups. Older employees had lower education levels, and higher levels of turnover which is likely a result of the physical demands of the job. While there was great variance in the attributional style across the manufacturing teams, the mean was modestly optimistic. Additionally, the groups reported relatively strong levels of potency and identity. Given none of the demographic measures were related to the dependent variable, they were excluded from further analyses. Thus, Hypothesis 1 could be initially tested by examining the correlation between attributional style and turnover behavior. Given the coding scheme (lower CPCN = more pessimistic; turned over = 0), the positive correlation shows that pessimistic groups were likely to produce higher individual turnover.

*Hypothesis Testing*

Moderated regression is typically used to study the unique and relative effects of independent variables on a dependent variable when controlling for each other (Pedhazur, 1982). However, when analyzing a categorical dependent variable with categorical and continuous independent variables, logistic regression analysis is recommended (Goodman & Blum, 1996; Tansey et al., 1996).

*Hypothesis 1* predicting group explanatory style would relate to group member turnover was supported. Groups with a more pessimistic explanatory style led to higher turnover among members than groups with an optimistic explanatory style ( $b = .23, t < .01$ ), even after accounting for cross-level effects and holding constant the effects of group potency and social identity (see Table 2). In addition, group members who left for voluntary reasons were likely to have left more pessimistic groups ( $b = .21, t < .05$ ) than individuals who turned over for involuntary reasons (see Table 3).

**Table 1: Descriptive Statistics<sup>a</sup>**

	Mean (σ)	1	2	3	4	5	6	7	8
Individual Turnover	.60 (.49)	-							
Age	2.90 (2.02)	-.15	-						
Gender	1.50 (.50)	.07	.14	-					
Education	2.60 (.91)	-.01	-.33**	.07	-				
Tenure	22.66 (17.1)	-.04	.33**	-.13	-.31**	-			
Group CPCN	.63 (10.57)	.78**	.23*	.06	.05	-.32	[.76]		
Group Potency	7.53 (1.35)	.12	.01	-.02	.10	-.13	.19*	[.91]	
Social Identity	3.98 (.52)	.40**	.13	.07	.04	-.23**	.39**	.56**	[.70]

a = standard deviations in parentheses, reliabilities in brackets

\* =  $p < .05$  (2-tailed)

\*\* =  $p < .01$  (2-tailed)

**Table 2: Logistic Regression**  
(Employees That Left Versus Those That Stayed With The Company)

Variables	<i>b</i>	s.e.
Group CPCN	.23**	.09
Group Identity	2.41**	.94
Group Potency	.67*	.34
Constant	-2.01	
-2 log likelihood	73.93	
Model Chi-square	107.55***	

Those who left = 0, those who stayed = 1

\* = <.05  
 \*\* = <.01  
 \*\*\* = <.001

**Table 3: Logistic Regression**  
(Employees That Left For Voluntary Versus Involuntary Reasons)

Variables	<i>b</i>	s.e.
Group CPCN	.21*	.11
Group Identity	2.41*	1.11
Group Potency	.61	.38
Constant	-1.77	
-2 log likelihood	58.1	
Model Chi-square	64.13***	

Those who left for voluntary reasons = 0, those who left for involuntary reasons = 1

\* = <.05  
 \*\* = <.01  
 \*\*\* = <.001

*Hypothesis 2* proposed an inverse relationship between group potency and turnover. Again, Tables 2 and 3 present the results of the analysis. Groups with higher potency experienced lower turnover ( $b = .67$ ,  $t < .05$ ). However, there was no difference for high versus low potency groups in terms of voluntary versus involuntary reasons for leaving.

*Hypothesis 3* was supported in that higher social identity groups experienced lower turnover in general ( $b = 2.41$ ,  $t < .01$ ), and a lower turnover rate due to voluntary reasons ( $b = 2.41$ ,  $t < .01$ ).

## Discussion

This study proposed and tested the idea that the attributional style construct existed at the group level of analysis. WABA analysis of responses from 50 work teams illustrated the attributional style measures (in fact all the measures of interest) did display group level characteristics in accordance with existing recommendations for

conducting multilevel research (House et al., 1995; Klein et al., 1994; Klein & Kozlowski, 2000). It was further proposed that this group level phenomenon would influence turnover behavior. This proposition was also supported. This impact was established while simultaneously accounting for the influences of group potency and social identity firmly established in shared group cognition research. The following discussion will outline theoretical and practical implications.

Consistent with expectations, group attributional style had a significant impact on individual turnover. This finding adds to the rich body of previous research on factors that contribute to employee withdrawal behavior. Previous related research examined the increasing effect on individual turnover of communication networks (Krackhard & Porter, 1985), the centrality of network position (Eisenberg, Monge & Miller, 1983), and social influence (Kincaid, 1993). More recent studies have shown that others can indirectly influence an individual's turnover behavior—a friend's turnover will increase the chance of an individual's departure (Mollica & DeWitt, 2000; Shah, 2000). Findings from this study showed that a group member's decision to stay at or to leave a particular job is a function of the quality and pattern of interaction with other group members (Feeley & Barnet, 1997). For example, Krackhardt and Porter (1985) argued that the 'closer' the friends who leave the organization are to the person who stays, the stronger the effect will be on the latter's turnover considerations. Again, recent research on voluntary turnover shows 'such a shock' may induce an individual to leave a job, even if they are not personally dissatisfied (Dess & Shaw, 2001; Lee et al., 1999).

As shown here, and consistent with prior work of shared team mental models, team member interactions likely developed a group level schema regarding the nature and causes of their experiences. In particular, the negative attributional style likely reflected interactions among group members that created collectively agreed upon, ego-protecting explanations for perceived failure. Furthermore, a normative belief in the immutability of the situation collectively indicated such experiences were not necessarily indicative of personal failure on any one member's part. Consequently, this process created mutual social support for leaving. This effect was compounded by the degree to which the group collectively felt incapable of mobilizing an effective improvement response (potency).

The significant finding for social identity speaks to the issue of who group members may see as "friends" in making cognitions. Similarity across group members may enhance social integration (i.e., the degree to which an individual is psychologically linked to others in the group) and in turn lead to a lower likelihood of leaving (O'Reilly, Caldwell & Barnett, 1989). Historically, research has shown that demographically similar people create a supportive identity group that can reduce pressures to leave. Prior research has found higher turnover rates in demographically diverse work groups (Jackson et al., 1993), and O'Reilly et al. (1989) discovered that disagreement within heterogeneous groups accelerates the departure of members. The traditional perspective holds that the presence of demographically or socially "different" members of an otherwise homogeneous group may make the other members of the group uncomfortable.

Our findings were to the contrary. The teams in this study were ethnically diverse

(Caucasian, Hispanic, Vietnamese, Native American) and displayed no significant differences related to the measures. One explanation may be that communication is easier and support stronger between individuals with shared social experiences (Zenger & Lawrence, 1989) and the physical arrangement of the workplace created close proximity and prolific social interaction as well. The groups in our sample were heterogeneous, yet the results show the existence of high within-group consensus which is consistent with recent research (Earley & Mosakowski, 2000; Lau & Murnighan, 1998; Pfeffer, 1998) showing the “right balance” of diversity in groups is necessary for greater organizational effectiveness. This study thus shows people in the workplace can be attracted to each other and create a shared identity because of the work even when they are not similar demographically. This would be consistent with the growing body of literature claiming social identity can be created around task-related as well as demographic criteria.

As with all research, this study had its strengths and limitations. First, this was the first known attempt to specifically examine attributional style as a group level construct, and one of the few to examine how attributional style affects turnover behavior. This issue is especially important given the increase in the use of groups and teams in today’s organizations and how little we understand group versus individual motivation (Sundrom, DeMeuse & Futrell, 1990). Second, as a field study in a manufacturing organization it adds to the generalizability of attributional style beyond the traditional insurance and sales domains. Third, this research studied groups in their natural settings with hard outcome measures, thus responding to the need for research studies on groups in real organizations (Langfred, 1998), as well as avoiding common threats like common method variance. Fourth, this study sought to reduce internal validity threats by examining teams of a fixed size doing the same task. Finally, our analysis sought to control for multilevel issues that would potentially contaminate our variable of interest.

One important limitation of this study was the sample size. Survey responses were only obtained from 50 intact teams. While this number minimally met the threshold for sufficient power (.8 at  $\alpha = .05$ ), small sample sizes tend to be problematic when investigating complex phenomena (Cohen & Cohen, 1983). Thus, interpretations of these results must be made cautiously. Even so, our sample of identical and fully intact teams meets or exceeds the sample size typically obtained in research in this stream, and we hope future studies with larger samples will provide support for the moderating effects we proposed.

While this study was longitudinal in terms of the independent variables preceding the dependent variable, further research using repeated measures designs might result in a more robust and comprehensive understanding of how the group beliefs identified here influence group outcomes. As mentioned before, we were not able to obtain dates of turnover though such an analysis would have provided a robust insight into possible relationships between degrees of attributional style and time to turnover. It has been noted that many findings concerning groups may not equally apply to “newly born” groups (Jackson et al., 1993). The distinguishing characteristic of “newly born” groups is that prior to the formation of the group none of the group’s members have any formal experience working with one another. In this organization there is a

practice of occasionally collapsing remnants of former groups into a new group. Thus, it would be interesting to look at the antecedents and the formation process of optimistic and pessimistic group norms in newly-created groups versus groups where members are carried over from prior (optimistic or pessimistic) groups. Indeed, such an approach would be extremely valuable given the rotation practice commonly used in professional services firms.

The results of this research suggest that organizations should pay close attention to the habitual explanations of work groups. The findings of this study indicated group attributional styles (optimistic or pessimistic) did impact turnover. Companies that require persistence and initiative due to frequent frustration, rejection, and even defeat should focus on more training that might instill optimism in their employees (Luthans, 2002b). More importantly, these effects were found even though performance was not highly variable. Thus, turnover behavior here was almost exclusively due to differences in collective sense making than to differences in actual outcomes. Therefore, efforts to help frame experiences optimistically might benefit the organization even when no actual change in objective circumstances may be needed (Luthans, 2002a).

Furthermore, our findings relate to work on social networks and social capital. A person's position in a social network can greatly influence their impact on an organization (Sparrowe et al., 2001), including being a key player that instigates a cohort to turnover (Dess & Shaw, 2001). Professionals commonly demonstrate greater loyalty to their network than the organization (Cappelli, 2000) and thus, a snowball of turnover is common (Dess & Shaw, 2001). However, we, like Krackhardt and Porter (1985), found similar behavior among low-level production employees and this, in and of itself, deserves recognition beyond the implication it suggests for less organizationally committed cohorts. It takes considerable time for an organization to develop the unique knowledge, memory, and interpersonal connections that result in increased efficiency (Nahapiet & Ghoshal, 1998). Yet, collective turnover of a social cohort can impede the development of or even eliminate valuable human and social capital. While recent recommendations emphasize investing in developing people (Pfeffer, 1998), organizations would be foolhardy to do so, knowing they will leave before any return is realized (Guthrie, 2001).

Seligman (1991) explains "learned optimism gets people over the wall—and not just as individuals but the whole team" (p.256). Workshops for optimism training could teach members of the group how to cope with adversity. How to utilize work-related team attitudes instead of individual differences related to demographics could be the source of social support that makes the difference between renewed commitments to the organization versus pessimistic abandonment through leaving.

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