

Determinants of Goal Commitment in an
Incentive-paid Workforce

by

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(ABSTRACT)

The Hollenbeck and Klein (1987) expectancy-based model of goal commitment is revised to reflect current critiques in the literature. The model contains elements suggested by Eden (1988) which are designed to better integrate goal and expectancy theory. This revised model is used to examine the determinants of goal commitment in an incentive-paid workforce. Support was found for the antecedent relationship of trait expectancy and goal level to state expectancy. No support was found for the causality of any of the antecedent relationships to goal commitment at the individual level of analysis. The data were examined to determine if there were team effects present. Teams did affect the magnitude of some attitudinal measures and all but one of the correlations of concern to the hypotheses presented here. When the teams are considered as wholes, all but one of the research hypotheses are supported, although no determinations of causality can

be made. The results are discussed, as are the limitations of the study and directions for future research.

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CHAPTER 1: INTRODUCTION

OVERVIEW

Goal commitment has been extensively studied as a critical antecedent to performance (Pinder, 1984) and research has consistently shown that those who are highly committed to difficult goals will perform better than those who are less committed (Tubbs, 1986; Mento, Steel and Karren, 1987). Further, the issues of goal setting and goal commitment are particularly relevant to the practice of management, since so many employees are managed with goal-setting techniques (Pritchard, Jones, Roth, Stuebing and Ekeberg, 1988).

Goal theory (Locke, 1968) postulates two simple axioms that explain what motivates people and leads to their level of goal commitment and performance: (1) Hard goals will motivate higher goal commitment and performance than easier ones, and; (2) Specific goals motivate higher goal commitment and better performance than do non-specific goals.

Several researchers have also added elements of expectancy theory to the basic goal axioms to explain the

role of incentives and goal valence in peoples' goal commitment (Hollenbeck and Klein, 1987; Locke, Latham and Erez, 1988; Klein, 1991). As in expectancy theory (Atkinson, 1954 and Vroom, 1964) these researchers propose that a person makes a set of evaluations of probabilities of success coupled with reward value that, together with goal level, form the subject's level of goal commitment.

PURPOSE

A substantial body of literature has addressed the examination of the relationship between goals and goal commitment and performance, and a growing (although limited) body has examined goal commitment models that contain at least some element of expectancy theory. Both goal theory and expectancy theory have independently been shown to be predictive of goal commitment and performance. Accordingly, models of goal commitment (and hence performance) that use elements of both goal and expectancy theory have been specifically proposed by both Hollenbeck and Klein (1987) and Locke, Latham and Erez (1988).

The present study uses a revised form of the goal/expectancy model proposed by Hollenbeck and Klein (1987)

to examine the determinants of goal commitment in a field study among an incentive-paid workforce. The Hollenbeck and Klein (1987) model has been revised to include elements suggested by Garland (1984) and Eden (1988), to overcome problems inherent in the Hollenbeck and Klein (1987) model.

The decision to use an incentive-paid workforce to test the model is based largely on two factors: (1) Incentive-paid workers are often goal managed (Pritchard, et al, 1988); and, (2) these workers have large and significant incentives associated with their goals, hence their decisions about their commitment to achieve performance goals will have an effect on their livelihood. As will be discussed in Chapter 2, cognizance of goal levels and the relationship of performance to reward are important elements of the model to be tested. Incentive-paid workers (workers with performance goals) provide the most appropriate test of the proposed model.

SIGNIFICANCE

This research has both practical and theoretical significance. From a practical standpoint, the study examines the antecedents of goal commitment in a goal-managed

context and provides important information about how goal commitment decisions occur in an actual workforce. The study also provides information about the role of goal levels and other organizational factors that can affect the individual employee's level of goal commitment (which in turn is believed to affect performance). A more robust understanding of the role that these factors play in employee goal commitment will enable managers to better plan their interventions in a goal-managed environment.

From a theoretical perspective, this study uses a model of goal commitment consistent with recent literature to examine the determinants of goal commitment in a field setting. As both Mento, Steel and Karren (1987) and Tubbs (1986) note, the majority of all goal research has taken place in lab settings. A field study of this type provides information about the importance of various antecedents of goal commitment that have heretofore been primarily examined in lab environments, and permits a test of a revised goal commitment model.

APPROACH

The study uses a single administration survey methodology. Employees in three sewing plants were asked to respond to several items that measure attitudes that the model asserts determine goal commitment. Company data are used to determine the actual goal levels about which the employees are responding.

The survey was pilot-tested at a site similar to those used in the study. Path analysis, multiple regression, and within and between analysis are used to examine the viability of the model.

SUMMARY

In summary, the purpose of this research is twofold: to describe a goal/ expectancy model of goal commitment that is consistent with the current literature and to use the model to examine the determinants of goal commitment in a field study among incentive-paid employees.

This first chapter has defined the focus of this study and has shown how the study contributes to our understanding of worker motivation. It has also shown that

testing the model in an incentive-paid (and goal-managed) workforce not only provides a propitious test, but also substantially enlarges our understanding of worker motivation by applying the model to an actual workforce.

Chapter 2 reviews and discusses the relevant literature and details the goal/ expectancy model of goal commitment used in the study. Following the literature review and a description of the model, the research hypotheses for this study are presented.

Chapter 3 presents the methodology used to test the model. This chapter describes the research setting, the variable measures used, and the statistical procedures used to test the hypotheses. Chapter 4 presents demographic information about the participants and the empirical results of the study, and Chapter 5 presents a discussion of the results, the implications of this study for future research, and the limitations of the study. The Appendix includes a reproduction of the survey instrument used to collect the data.

CHAPTER 2: LITERATURE REVIEW

OVERVIEW

This chapter is written in 2 parts: Part 1 reviews the central literature in which models of goal commitment are developed and the literature addressing the problems extant in current goal/ expectancy models of goal commitment. Working from this literature, a revised version of the Hollenbeck and Klein (1987) model of goal commitment is presented; Part 2 details the research hypotheses of the proposed research and the rationale for making these hypotheses.

PART 1: GOAL THEORY AND GOAL COMMITMENT MODELS

Goal theory is a cognitive theory of performance introduced by Locke (1968), who posits the two basic axioms of goal theory: difficult goals (if accepted) lead to greater performance than do easy goals and specific goals

lead to higher performance than do general goals.¹ The fundamental concepts of goal setting theory are further articulated by Locke, Shaw, Saari and Latham (1981), who re-define the basic axioms as being "clarity, (the degree of quantitative precision with which the aim is specified) and difficulty (the degree of proficiency or level of performance sought)" (page 126). Pinder (1981) restates the fundamental axioms of goal theory somewhat differently: (1) that goals and the intentions to achieve those goals are the bases of action; (2) that because of the first axiom, higher or more difficult goals will be more motivating; (3) that specific goals are more motivating than vague goals; and (4) that incentives have no effect on behavior unless they are used to enhance goal commitment or to cause the subject to set higher goals (e.g., incentives will only be effective if they are contingent on goal performance and/or level of goal performance).

¹ Mento, et al (1987) trace the antecedents of goal theory back to the turn of century and the Wurzburg school, where research was concerned with task and intention. They also note that goal setting theory is also dependent on Ryan (1970) who develops the theory that intentions are the immediate psychological precursor to action.

The relationship between goal level and performance has been repeatedly documented (Latham and Steele, 1983; Locke, et al ,1981; Mento, et al, 1987; Wood, Mento and Locke, 1987; and Tubbs, 1986). Locke et al (1981) reviewed the literature (although not using meta-analytic methodology) and reached conclusions similar to those reached later by both Tubbs (1986) and Mento et al (1987) (both of whom used meta-analytic methodology). Mento et al (1987) and Tubbs (1986) performed meta-analysis of empirical examinations of the relationship between goal and performance. Their reviews contained both field and laboratory studies and represent the best examinations on the overall empirical success of goal theory to date. Both found a significant positive relationship between goal difficulty and performance. Support was also demonstrated for the second goal axiom; goal specificity was found to be positively related to performance. Brady and Lee (1989), working in the expectancy paradigm, found that subjects had irrational preferences for known vs unknown tasks, which underscores the importance of subjects' preference for specific tasks (e.g., tasks that they clearly understand). Supporting this, Wood, Mento and Locke (1987) had found that goal effects were smaller for more complex

tasks (i.e., the number of considerations and unknowns are increased and hence the task is less "specific").

These reviews of the goal literature have consistently demonstrated the relationship between performance and the fundamental axioms as detailed in Locke (1968).

How goals affect performance

The examination of the cognitive process through which challenging and/ or specific goals actually motivate performance is a primary interest of goal researchers. It is important too to note that because the processes of interest are cognitive in nature, one can only observe and measure behaviors and perceptions associated with the cognitive processes. Thus, although goal theory proposes a set of cognitive processes by which a subject's actions are directed, goal studies can only infer from action and reported perceptions that the processes operate in the manner hypothesized. Locke et al (1981) define four mechanisms through which goals affect performance: direction, persistence, mobilization of effort and strategy development. Locke et al (1981) note that the fundamental effect of goals is to direct the subject's action and

attention, and to determine the level of that action and attention over time. Tubbs and Ekeberg (1991) restate these hypotheses such that the subject develops an action plan, which consists of persistence, direction and effort mobilization. Individuals' development of strategies (Earley, Connolly, and Ekegren, 1989) or action plans (Tubbs and Ekeberg, 1991) is described as a process motivated by the goal, which functions largely to help make the goal obtainable. Action plans may include support strategies designed to assure completion of a fixed goal, or enabling strategies, designed to make the goal itself simpler, more attainable or more acceptable.

Earley, Wojnaroski and Prest (1987) simplify the Locke et al (1981) set of effects, noting that the direction and persistence mechanisms are essentially motivational and refer to them both as "direct effects". Direct effects set the level and persistence of effort that an individual will devote to a task. Early et al (1987) categorize the mobilization of effort and strategy development as "indirect effects," that function through a largely cognitive process through which the individual plans for the utilization of goal-achieving resources. In an examination of the effect of goal specificity on performance, Earley et

al (1987) found that there are increases in both direct and indirect activity associated with more specific goals (supporting the second Locke (1968) axiom).

Both of these studies review substantial literature that underscores the Locke et al (1981) proposition that goals operate to enhance performance through two mechanisms; direct effects (motivation) and indirect effects (planning and strategy).

Finally, Tubbs and Ekeberg (1991) describe the mechanism through which goals operate to affect performance as a three effect system. The first and most direct effect of the goal is on the consideration of valences (from the level of reward associated with the goal), expectancies (probability of achieving the goal) and hence, motivational force. Following these determinations, goals then operate as described above to form the intentions for action (the action plan) and to stabilize intentions over time.

Goal Acceptance and Goal Commitment

As noted in the Locke (1968) basic axiom, hard goals if accepted will motivate higher performance than will easy

goals. Goal acceptance is thus critical for the goal level to have an impact on performance.

Erez and Kanfer (1983) address the underlying theory of goal acceptance, and its role in creating the goal-performance linkage. Erez and Kanfer (1983) postulate that the process of goal acceptance follows a basic utility function, similar to that proposed by Vroom (1964) for expectancy theory:

The utility of accepting a goal can be understood in the same way [as a job action in expectancy theory]. The expected value of accepting a goal is a function of the expectancy that attainment of that goal will lead to outcomes that are valuable to the decision maker. (page 455)

Erez and Kanfer (1983) reach the conclusion that goal acceptance relies substantially on a subject's favorable evaluation of the outcome of goal completion. Thus, a favorably valued reward for goal attainment is critical to goal acceptance. Erez and Kanfer (1983) also note that participative goal setting processes increase the level of goal acceptance over goals that are set external to the subject. They do not posit that a subjective probability is made before the commitment of effort, as expectancy theory would postulate. Rather, they aver that the subject will make evaluations about the value of reward for goal attainment and will weigh that value against their

valuation of work and inputs that they will have to exchange to achieve the goal and complete the reward.

Riedel, Nebeker and Cooper (1988) propose a similar application of an expectancy-valuation foundation for goal choice and subsequent goal commitment. In their framework, evaluations are made about effort required for success at various goal levels, with the subject then choosing and committing to a goal that meets the appropriate value exchange. While the Riedel et al (1988) model is very well specified and is empirically demonstrable, it is dependent on a condition of subject goal choice, and is thus not generalizable to situations or theory that include goals but not goal choice.

Kernan and Lord (1988) further explored the effects of expectancy and valence on subjects' goal commitment and performance in a goal setting environment. Their research showed that, in at least some of their experimental manipulations, valence and an expectancy of success in goal accomplishment had a positive impact on goal acceptance and commitment.

Erez and Kanfer (1983) also conclude that there are structural aspects of the goal-setting process that can affect goal acceptance. These processes all contain some

element of participation in the goal setting process. Eden and Kanfer (1983) demonstrate the positive effects of participation on acceptance directly, as do Kernan and Lord (1988), Earley and Kanfer (1985), Earley, Erez and Hulin (1985), Earley (1985), Latham, Mitchell and Dossett (1978). Erez and Kanfer (1983) and Earley (1985) note that the mechanism through which participation increases goal acceptance is by increasing the specificity of the goal (the second axiom) which may then give the subject a better understanding of the amount of effort that will be required in reaching the goal. Further, participation in goal setting allows the subject to choose (or assist in the assignment of) goal levels that are more acceptable, although still challenging. By allowing some participation in goal level setting, goals that the subject will find unacceptable will not be assigned, in favor of goals that will be accepted.

Erez and Arad (1986) note that in addition to the above factors, factors related to group participation in goal setting (group consensus, commitment to public decisions, and involvement) may also serve to increase the acceptance of goals. This is further supported by Mitchell and Silver (1990) who find that group goals are more mo-

tivating than individual goals alone for group performance, particularly when task interdependence is high. They attribute these effects to the broadened sense of responsibility that each individual feels as a result of the interdependence of group members.

Although the discussion of structures that modify goal acceptance are critical to the understanding of specific applications of goal theory, they must (except for the effects of incentives and rewards) be very carefully put into the category of boundary conditions. These structures are not present in all goal-performance situations and so represent special sets of rules that must be considered when and if they are present.

Goal commitment and the intention to perform

Regardless of the existence or non-existence of acceptance-facilitating organizational processes, goal acceptance (once achieved) is the final step before the formation of the subject's intention to perform. Goal acceptance is a necessary condition of the broader pre-intention condition of goal commitment (Locke, Latham and Erez, 1988). According to Locke et al (1988), goal ac-

ceptance is a condition of goal commitment that must exist when goals are externally set. They are not specific where acceptance would fit into the the model of goal commitment; however, their discussion suggests that the distinction between goal acceptance and goal commitment is that acceptance is the initial agreement with a goal while goal commitment is the level of the individual's reluctance to vary (or accept variance in) the goal once set. This distinction makes studies that verify the importance of participation in goal setting or goal choice somewhat peripheral, in the sense that all that they are really describing is a process that only tangentially affects performance level. To restate this; accepting the Locke et al (1988) proposal that it is the level of commitment to a goal and not the mere acceptance of the goal that is instrumental to the level of performance, then acceptance of the goal is important to performance only so far as it allows (accepts) or disallows the goal motivating process to proceed.

Hollenbeck, Klein, O'Leary and Wright (1989) clarify the position. They note:

Commitment to difficult goals should be distinguished from goal acceptance, which merely refers to the initial use of a goal assigned by another person.....Acceptance does not necessarily imply that

the person is psychologically bound to the goal (page 951).

Locke et al (1988) remonstrate the literature for using poor articulations of the goal commitment construct in many studies. They note that it is imperative that goal commitment be considered in a form that permits a wide and incremental range of levels of commitment. When sufficient variability is used in a study, Locke et al (1988) note that goal commitment becomes significantly associated with performance. They also note that models that include expectancy predictions are substantially better served when commitment is a variable construct. Subjective probabilities and valences can then set varying levels of goal commitment, instead of trying to force the expectancy framework into a theoretical structure that can yield only dichotomous conditions. Hollenbeck, Williams and Klein (1989) substantiate the importance of goal commitment as the last cognitive step in the goal-performance process, positing that it is goal commitment that finally drives the behaviors that will lead to performance.

The Goal Commitment Model

Locke et al (1988) and Hollenbeck and Klein (1987) represent recent and comprehensive discussions of the state of goal theory. These two works summarize the existing literature and present very comprehensive models of goal commitment. Figure 1 shows a diagram of the processes associated with goal commitment; the structure of this diagram is taken from Locke et al (1988), and contains all of the elements of that model, along with additional elements from Hollenbeck and Klein (1987) and Locke (1968). The diagram based on the Locke et al (1988) model is a useful heuristic for classifying the factors that affect the cognitive processing antecedent to goal commitment, because it classifies the factors according to the nature of the factors themselves, rather than simply showing them in relation to other parts of a specific model. In this respect, the Locke et al (1988) model is differentiated from the Hollenbeck and Klein (1987) model, in that it is more a theoretical heuristic for the exposition of a theory of goal commitment and less a model designed to examine determinants of goal commitment.

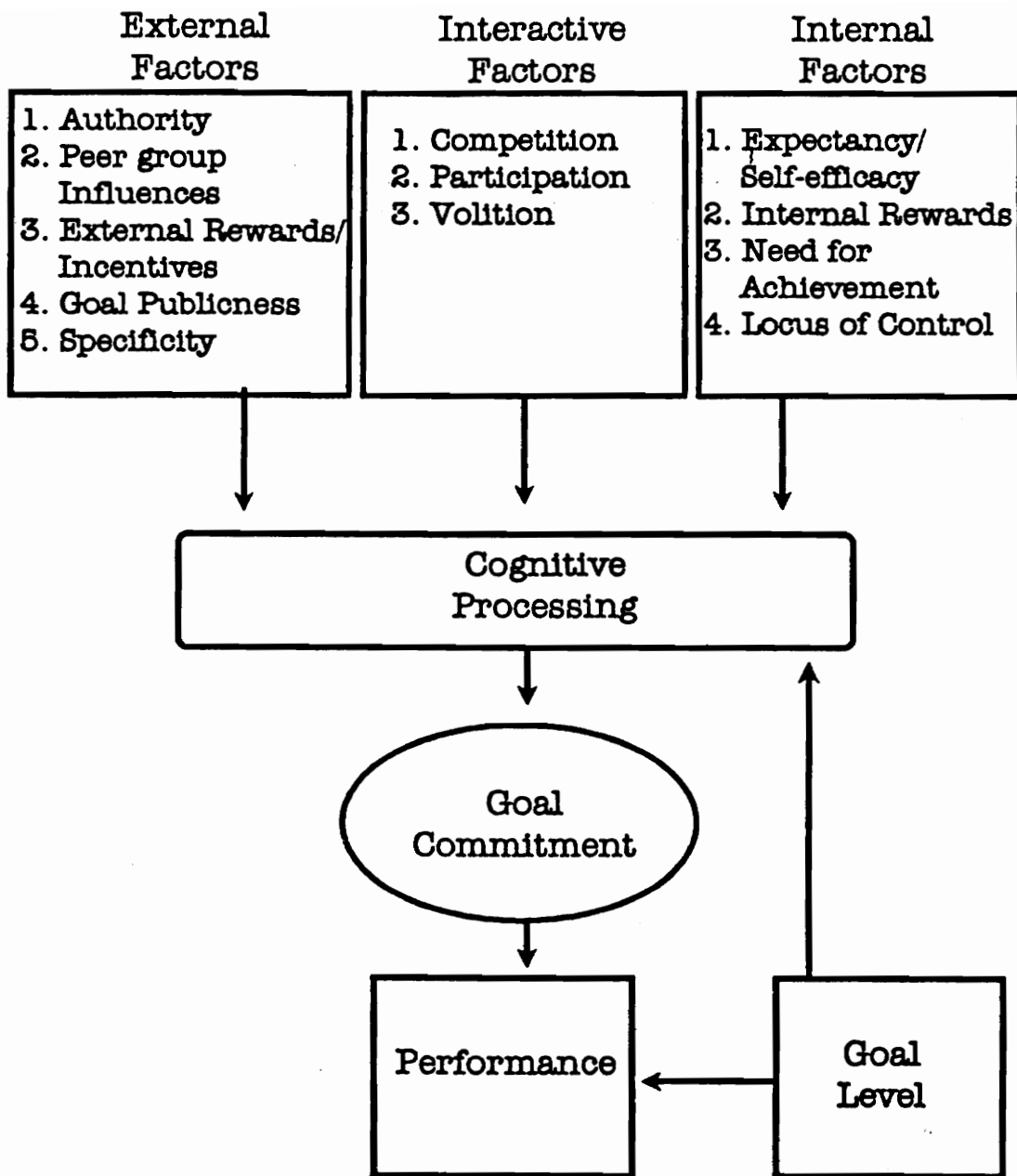


Figure 1. Locke et al (1988) Model

Central to the Locke et al (1988) model is that decisions about goal commitment are made in a cognitive process affected by three different types of factors: (1) External Factors- those factors that exist in the environment in which the subject considers the goal or goals to be accepted and committed to; (2) Interactive Factors- factors that exist external to the subject, but with which the subject must interact; and, (3) Internal Factors- the set of decision factors that operate solely within the mind of the subject.

External factors include: Authority (at what level or by whom were the goals set); Peer group influence (what are the peer group norms, how effective is any conformance pressure); External rewards and incentives (higher incentives will add acceptance and commitment to more difficult goals); Specificity, or the clarity of the goal (Locke, 1968); and, Goal Publicness (the extent to which important others are aware of the goal). Hollenbeck et al (1989) note that people tend to avoid altering their acknowledged course of action; doing so makes them appear inconsistent, therefore more public goals lead to higher goal commitment than do less public goals.

There are two interactive factors: Participation (does the subject have an influence on goal level and/or a say in the discussion that will lead to the level being set?); and Volition, or the idea that goals undertaken with free will are more psychologically binding and will cause the subject to act with greater consistency (Hollenbeck et al (1989) postulate that a self-set goal will engender more commitment than one externally set; thus the volitive state creates greater commitment).

Lastly, there are four variables included in these models that are classified as internal factors. The first internal factor is subject Expectancy or Self-Efficacy; Locke et al (1988) note that expectancies of success will determine the subject's commitment level such that goals with lower expectancies of success will have lower commitment levels (self-efficacy is considered to be co-cedent to expectancy; those with higher self-efficacy will also have higher expectancies of goal success). The second set of factors consists of Internal Rewards (rewards that the subjects provide to themselves, e.g., "wow, I did really well!"). Factor three, Need for Achievement is applied by Hollenbeck and Klein (1987). Hollenbeck et al (1989) demonstrate that individuals with a higher need for

achievement will demonstrate greater commitment to challenging goals. Note as well that Atkinson (1957) and Hamilton (1974) found similar effects for subjective probability preferences. The final internal factor is Locus of Control, which comes from Hollenbeck and Klein (1987). Hollenbeck et al (1989), demonstrate that individuals with an internal locus of control will have higher commitment, and that highest commitment is found for subjects with a high need for achievement coupled with an internal locus of control. Also note that Szilagyi and Sims (1975), writing about subjective probability, found that those with an internal locus of control preferred lower subjective probabilities (tougher goals).

All of these factors, when present, affect the cognitive processes associated with goal setting and the factors that lead to the subject's level of goal commitment. In the Hollenbeck and Klein (1987) model (Figure 2) the dotted arrow from the cognitive processing box to goal content and back (not in the Locke et al (1988) model) represents the goal level effect on the subject's cognitive process and the effect on goal content (goal level) that will be present when participative goal setting or goal choice are available to the subject; when these

participative factors are present, goal content is an outcome of cognitive processing as much as is goal commitment (c.f., Riedel et al (1988)).

From the above review of the primary goal commitment models, it is apparent that the determinants of goal commitment may be best examined using a model that contains elements taken from expectancy theory. Locke et al (1988) are explicit in their inclusion of expectancy decisions, as are Hollenbeck and Klein (1987).

Hollenbeck and Klein (1987) also develop an expectancy based model of goal commitment, which, as noted earlier, is a much more "testable" model than the theoretical heuristic proposed by Locke et al (1988). Shown in Figure 2, this model posits that expectancy considerations take place in the determination (choice) of goal commitment. Valence (attractiveness of goal attainment) works with the expectancy (subjective probability) of goal attainment to determine the level of commitment to a given goal level.²

² Hollenbeck and Klein (1987) propose that the interaction between valence and expectancy leads to an individual's goal commitment. The model that is developed in this research more closely follows those proposed by Eden (1988) and Earley and Lituchy (1991), which did not include the interaction.

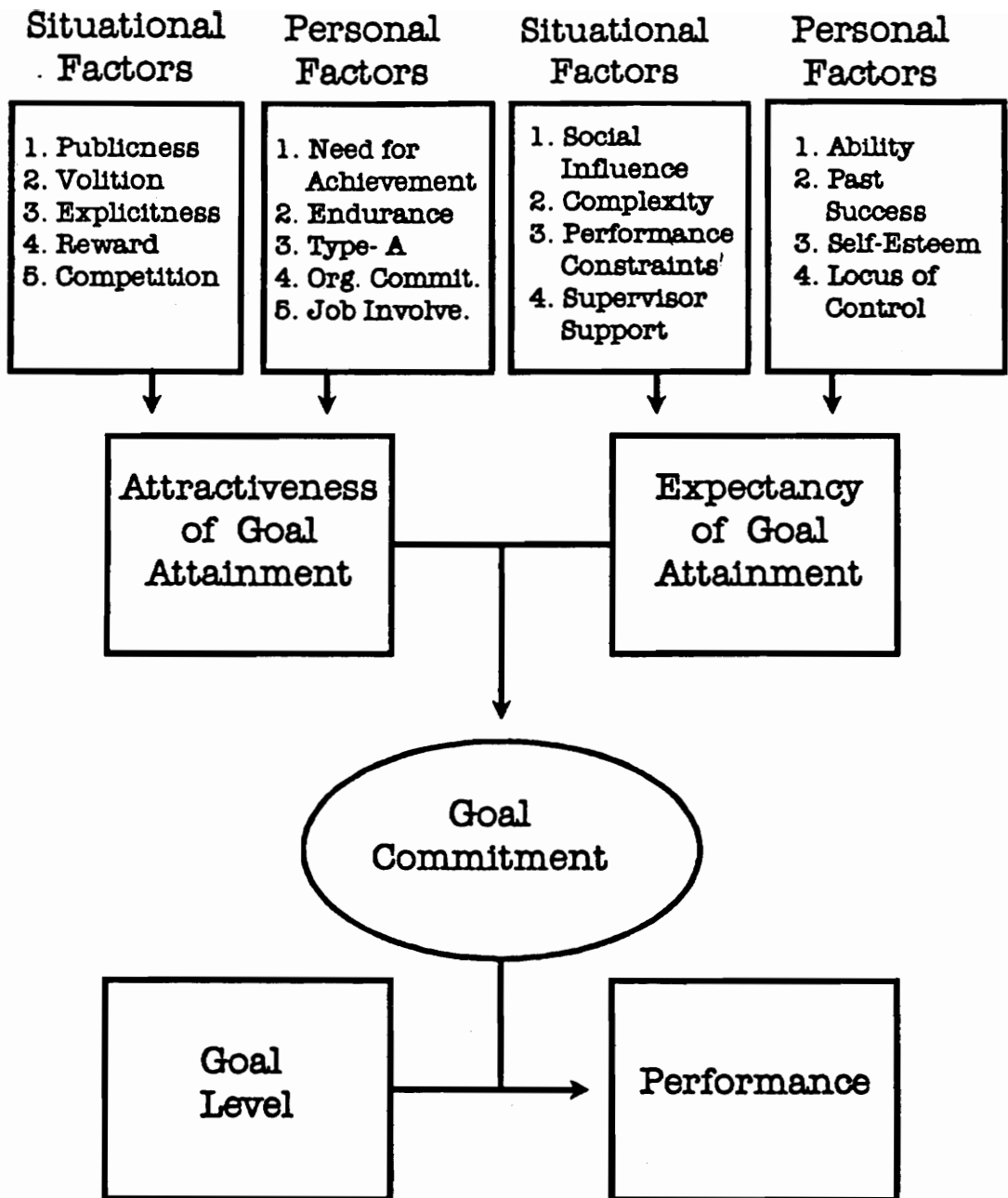


Figure 2. Hollenbeck and Klein (1987) Goal/ Expectancy Model

The level of the goal and the level of commitment to that goal then function together to determine performance. Note too that the factors that were classified as external and internal in the model in Figure 1 have now been classified as situational and personal respectively, and have been sub-categorized as influencing either the expectancy or the valence decisions. The interactive factors do not receive a separate category; volition is categorized as situational and competition and participation are not included. The Hollenbeck and Klein (1987) model is evocative of the postulates of Erez and Kanfer (1983) that goal acceptance³ is the result of a utility function described by expectancy theory. Hollenbeck and Klein (1987) do not discuss why participation was not included as a situational variable leading into the expectancy portion of their model (nor for that matter, into goal level or commitment). Alternatively, one might conclude that participatory processes so alter the fundamental goal model that a model including participation would have to be considered separately.

³ Goal acceptance is considered to be a pre-commitment condition (Locke et al, 1988; Hollenbeck et al, 1989).

Problems in the Goal/ Expectancy Linkage

The review of the goal commitment models above demonstrates that several goal theory researchers have used elements of expectancy theory to explain the motivating process of goal setting, particularly in an environment where incentives are used. The models of goal commitment in Figures 1 and 2 show that expectancy considerations (and self-efficacy considerations as well) are a part of the models proposed by Locke et al (1988) and by Hollenbeck and Klein (1987).

The Hollenbeck and Klein (1987) goal commitment model is in most respects an excellent iteration of an expectancy model of goal commitment; it clearly describes the goal commitment processes within an expectancy framework and does so in way that can be tested. The only potential flaw in the model is the paradox noted by Garland (1984) and Eden (1988); that the expectancy for hard goals is lower than that for easy goals, which then creates the contradiction of low expectancies being associated with higher performances or lower goals being associated with higher performances. In brief, the contradiction between goal theory and expectancy theory is of the following nature:

Goal theory posits that more difficult goals lead to higher goal commitment and better performance; expectancy theory posits that subjects' motivation (and goal commitment) is a multiplicative function of their assessment of the probability of success and the value for reward (e.g., when the value for reward is increased and/or the probability of success is increased, then the level of motivation, which is a product of these two values, is increased as well). The paradox is that workers will perceive that a high goal will have a lower probability of success than a low goal; thus (under traditional expectancy theory measurement) for a subject faced with a fixed level of reward, the low goal (with the higher probability of success) will create higher goal commitment than the high goal. This, of course, contradicts goal theory, which posits that the high goal will create higher goal commitment than the low goal. The question that arises is straightforward: is the Hollenbeck and Klein (1987) hybrid model sufficiently free from the problems of the goal/expectancy paradox, and if not, what must be done to revise it so that it is?

Garland (1984) notes, with regard to effectively reconciling expectancy and goal theory that:

Because subjective probability of success is a negative, linear function of goal difficulty...[cites] ...it is difficult to integrate the expectancy and goal-setting literatures. Although several authors have addressed this issue, the literature provides, at best, a confusing array of seemingly inconsistent data and speculation (page 79).

From this starting point, Garland describes two fundamental sets of problems with goal and expectancy research: (1) that expectancy to performance correlations are usually measured across goal groups (i.e., at a given goal level, subjects' expectancy predictions would be associated with performance) and (2) that much of the goal literature relies on simple tasks, of short duration, with immediate feedback and no external reward nor monetary incentive associated with goal accomplishment. Garland's research supports the assertion that goal and expectancy do work together, but that the literature has failed to examine the appropriate way to combine their effects. Garland's solution is to recognize the effects of goal level on performance, and to then analyze what leads to expectancy formations at a given goal level.

Eden (1988) revisits this issue, noting as had Garland (1984), that expectancy is functional when all else (goal) is held equal. Eden's contribution to the combination of goal and expectancy theory is a different way of concep-

tualizing the expectancy measurement. Eden suggests that the paradox between goal and expectancy predictions is really only a function of the way that subjective probability is measured. Eden posits that subjects with higher goals expect to produce more (in an absolute sense) than subjects with lower goals, even though they would rate their probability of success lower. Eden avers that investigation into expectancy theory effects has been needlessly restricted by the measurement of expectancy as subjective probability rather than as a prediction of a level of performance. Eden then proposes an alternative model of performance that uses this modified relationship between goal and expectancy. Although Eden's model is not fully integrated with goal theory (there is no goal commitment nor any of the antecedent conditions diagrammed in any of the models) it does provide an important reconceptualization of at least part of the goal/ expectancy relationship.

Eden replaces subjective probability with a measure of "state expectancy," which is the expectancy associated with a particular goal level under consideration by the subject. State expectancy is proposed to be a perceptual measure of an absolute level of how the subject will do,

or alternatively, a perceptual measure of how the subject will do relative to a cohort group. This level is set relative to the goal level: subjects with higher goal levels would be expected to have an expectation of higher performance relative to those with lower goal levels. Further, among subjects with the same goal level, those that expect higher performance will do better than those that expect lower performance. From this, one is able to measure an expectancy that is consistent with both expectancy and goal predictions: i.e., those with higher goals will have higher expectancies of performance and those with higher goals and higher expectancies will also perform better.

Eden (1988) also proposes that state expectancy level is a function not only of the goal level, but of a general "trait expectancy," which is essentially a measure of generalized self-efficacy. Bandura and Cervone (1983) postulate that motivation toward goal is influenced by perceptions of self-efficacy, in that previous performance develops within the subject an evaluation of potential performance effectiveness, which then in turn predicts the subject's performance against goal. The Bandura and Cervone self-efficacy measure is a set of probability as-

assessments about completing various levels of a task. Eden postulates an antecedent, generalized self-efficacy that provides the basis upon which the task-specific self-efficacy of Bandura and Cervone (which is measured against levels of a known task) is based. Eden (1988) notes that general self-efficacy scales have been developed by several researchers (including Sherer, et al (1982)) and distinguishes between this general perception of self-efficacy and self-efficacy associated with a particular state:

We should also distinguish between trait expectancy (i.e., beliefs about self-competence in achievement situations in general) and state expectancy (i.e., beliefs about future achievement in specific, ability-related situations....Trait expectancy is a cognition about self-competence; state expectancy is a cognition about specific performance.(page 642)

General self-efficacy or trait expectancy is a measure of subjects' cognitions about their general self-competence, as measured by Sherer, et al (1982) and state expectancy would then be an evaluation of how well they will do in the present performance context, measured using a traditional task-specific self-efficacy format.

As has been noted, the inclusion of self-efficacy into the antecedents of goal commitment (or performance in a goal-setting model without commitment) has a body of sup-

port beyond Eden (1988). Locke et al (1988) and Locke and Latham (1990) include self-efficacy as a supporting factor of expectancy. Locke, Motowidlo and Bobko (1986) developed a model integrating goal, expectancy and self-efficacy theory. Unlike Eden (1988), their model lacks the restatement of expectancy which operationally reconciles the two theories. Locke et al (1986) posit self-efficacy as a replacement for the "how well will you do?", which is a question instrumentally dependent on the task and goal under the subject's consideration. By using self-efficacy as a substitute, Locke et al (1988) replace the traditional expectancy question with "how well can you do?" which is non-specific to the current goal level. Hence, although Locke et al (1986) do align high goals with a high substitute expectancy measure, they fail to retain in the measure the instrumental linkage between the subject's goal and the subject's assessment of his or her likelihood of a given level of performance. Their model is finally a self-efficacy/ goal model with a valence component and not a goal/ expectancy model. This is also true of the Locke and Latham (1990) model, which in most respects is an

elaboration of the Locke et al (1986) model.⁴ The assertion by Locke et al (1986) and Locke and Latham (1990) of the importance of the role of self-efficacy beliefs in the determination of expectancy decisions that are made in deference to goal level do lend important support to Eden's (1988) call for a trait expectancy antecedent to state expectancy. Eden is further supported in this by calls for inclusion of self-efficacy into the goal setting process by Gist (1987) and Locke, Frederick, Lee and Bobko (1984). Both cite substantial research linking self-efficacy to the goal setting process, and Locke et al (1984) and Earley and Lituchy (1991) demonstrate the effects experimentally as well. Both Gist (1987) and Locke et al (1984) note the deficiencies in existing measures of expectancy.

⁴ Gist and Mitchell (1991) note that there are a number of distinctions in the conceptualization and the measurement of self-efficacy and expectancy. They further note that self-efficacy is a much broader concept that is generative in nature; expectancy is task, goal, or performance episode specific. Although their discussion leads to the conclusion (as did Locke et al, 1986) that self-efficacy contains all that expectancy is and more, they too fail to distinguish that aspect of expectancy theory which is unique from self-efficacy; the decision about how the subject expects to do in the performance episode directly at hand. A subject with wonderfully high self-efficacy may not, for whatever reason, intend to apply full effort to the goal at hand. Eden's (1988) state expectancy retains that unique element.

Although Eden (1988) overcomes the central problem in goal/ expectancy reconciliation, he does not develop a full model of goal commitment. The Eden (1988) model posits trait expectancy, state expectancy and goal level as the sole antecedents of performance. A full expectancy model would require valence considerations. A full goal commitment model requires goal commitment as the final arbiter of the intention to perform. Eden (1988) makes an enormous contribution to the hybridization of goal and expectancy theory, although not actually producing a model of goal commitment.

One other issue raised in the goal/ self-efficacy literature is the role of assigned versus personal goals. Locke et al (1986) and Locke and Latham (1990) both explicitly assert that it is personal goal level that subjects consider when forming self-efficacy perceptions, (or in Eden (1988) terms, state expectancy perceptions). Eden (1988) is less clear, although Earley and Lituchy (1991) assert that Eden (1988) is referring to personal goals in his model as well. Earley and Lituchy (1991) tested the Eden (1988) and Locke and Latham (1990) models in experimental settings, finding that assigned goal level has a significant impact on personal goals and hence on state

expectancy. The question that arises from this is whether to examine assigned goal level as an antecedent of state expectancy decisions or to examine personal goal level as antecedent to state expectancy decisions. Since an actual work environment that is goal-managed has outcomes associated with assigned goals that may or may not reflect any volition on the part of the subject, the subject must psychologically react to the assigned goals; any personal goal assessment takes place within the assigned goal context. This is not to say that there are not personal goals that are intermediate between assigned goal level and state expectancy determinations, only that the assigned goal is of overriding importance. For the purposes of this study, assigned goal, measured independently of the subject, will be used as the goal level proposed to affect state expectancy. Given the high correspondence found between personal goal and assigned goal by Earley and Lituchy (1991), and given that measuring assigned goal allows for independent measurement in the context of this field project, there would seem to be little reason to consider the alternative.

At this juncture, it is propitious to return to the Hollenbeck and Klein (1987) goal/ expectancy model and

determine whether it can be effectively revised. The primary problem with the model that Hollenbeck and Klein (1987) propose is that the goal/ expectancy paradox will appear if the construct of expectancy is not re-specified according to the Eden (1988) proposal. If left unadjusted, this would be a serious flaw; however, the framework can be kept intact and the problematic section can be corrected.

Figure 3 presents the model to be used to examine the determinants of goal commitment in this study. Per Eden (1988) expectancy has been reconceptualized as state expectancy, the attractiveness of goal attainment is now reconceptualized as "attractiveness of performance" in keeping with the state expectancy "doing well" construct. Goal level and trait expectancy are functioning to create a level of state expectancy, consistent with Eden (1988) and Locke, Latham and Erez (1988). The subject's level of goal commitment is then an immediate function of state expectancy and attractiveness of performance.

The model retains the expectancy/ goal framework of Hollenbeck and Klein (1987), but adapts the constructs of its components to best fit current literature.

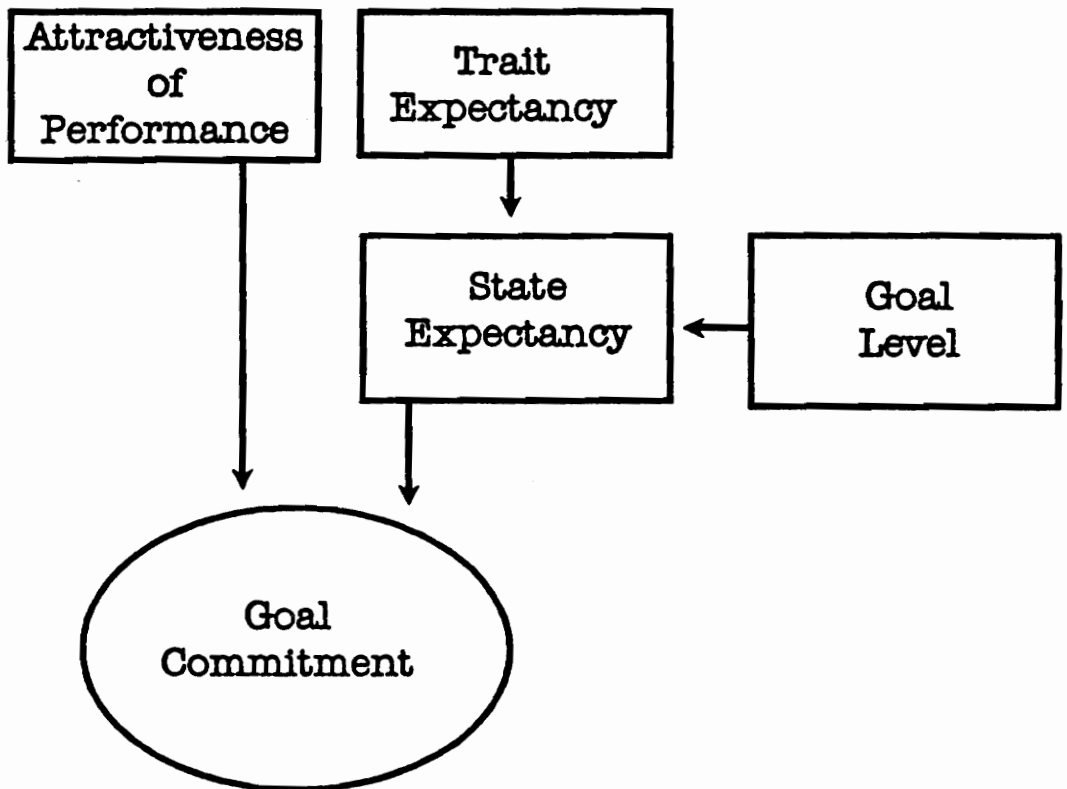


Figure 3. Revised Goal/ Expectancy Model

In this model, the subject is confronted initially with a goal. The subject then evaluates that goal in terms of how rewarding it would be to accomplish the goal (monetary incentives, internal rewards, etc.) and how likely the subject would be to achieve the goal. The subject assesses the likelihood of achieving the goal based on his or her assessment of his or her ability to perform (trait expectancy) in relation to the level of the goal. This evaluation leads to the subject's state expectancy (the subject's belief in his or her ability to perform in the present context). Finally, the subject weighs the probability of achieving the goal and the attractiveness of achieving the goal and makes a determination to act (goal commitment).

Subjects' goal commitment varies because of different levels of attractiveness of performance, goal level, state expectancy and trait expectancy. Subjects who report less attractiveness of performance will be less committed to a goal than would a subject with a greater value for performance (when goal and state expectancy are held equal). Likewise, when other factors are held equal, subject's with lower state expectancy will have lower goal commitment than subjects with higher state expectancy. As in expectancy

theory, subject goal commitment is a multiplicative function of their levels of attractiveness of performance and their state expectancy.

Trait expectancy and goal level are antecedents to the state expectancy formation. The subject bases his or her assessment of the likelihood of doing well in the present context based on the magnitude of the task (goal level) and the subject's general belief in his or her ability to perform well. State expectancy will be higher when either the goal level is higher or trait expectancy is higher (when the other factor is held constant). The effect of goal level on state expectancy is a basic goal theory effect; a higher goal results in higher goal commitment (state expectancy is a mediating variable). The effect of trait expectancy proceeds from expectancy formulations; subjects that have done well in the past tend to have higher probabilities (state expectancies) of doing well in the future, leading to increased motivation (goal commitment).

PART 2: RESEARCH HYPOTHESES

Hollenbeck and Klein (1987), Locke et al (1988) and Locke et al (1986) each propose that the subject's valence for the reward for goal attainment affects the subject's goal commitment. Subject's with a higher valence for the reward offered for a given goal will be more committed than will subjects with a lower valence for the same reward. This is consistent with predictions that would be derived from expectancy theory as well. As Hollenbeck and Klein (1987) note, the idea of simple valence for reward does not entirely capture elements of attraction associated with goal attainment that are not explicitly part of the incentive (i.e., non-pecuniary rewards such as satisfaction, peer group approval, etc.). They propose a more inclusive construct of "attractiveness of goal attainment", which would embrace both valence for reward and the attractiveness of other factors associated with goal attainment. In the proposed model, as noted earlier, "attractiveness of goal attainment" has been changed to "attractiveness of performance" to better reflect the "doing well" measure of state expectancy. This associ-

ation between attractiveness of performance and goal commitment leads to the following research hypothesis:

H1 Attractiveness of performance will be positively associated with goal commitment.

Eden (1988) proposes that trait expectancy is an antecedent condition that, together with goal level, provides the basis for the formation of the subject's state expectancy. The subject has a baseline sense of general self-efficacy (trait expectancy) which determines how well the subject perceives that he or she will perform within a given goal-level context. Thus, a subject with a higher trait expectancy can be expected to report a higher state expectancy for a given goal level than would a subject with a lower trait expectancy. This association yields the following hypothesis:

H2 Trait expectancy is hypothesized to be positively associated with state expectancy.

The relationship between goal level and state expectancy is asserted primarily by Eden (1988), Locke et al (1986) and Locke and Latham (1990). They propose an inter-relationship between personal goal and state expectancy

and leave relatively unclear the relationship between personal goal and assigned goal. Since many of the studies conducted using goal/ self-efficacy models are conducted in lab settings, subject goal selection can be made a component of the study. Even when goals are "set" for the subjects, the outcomes associated with failure or success are often small, which increases the importance of the personal goal and minimizes the importance of the assigned goal. Wright (1989) notes that the size of the incentive may have a substantial effect on the outcomes of performance in goal studies involving incentives; thus, in a field study where goal performance may mean thousands of dollars or even employment status, it is not unrealistic to assume that the assigned goals, which are instrumental to so many outcomes that the subjects value, will have powerful effects on subjects' perceptions. For these reasons, it is proposed that assigned goal level will be positively associated with state expectancy, such that at equal levels of trait expectancy, subjects with higher assigned goal levels will report higher state expectancy. The subjects in this study have both an assigned minimum goal (completion of which guarantees base rate pay) and a team goal, which the subjects set participatively. As Eden and

Kanfer (1983) and Kernan and Lord (1988) note, participation in the goal setting process leads to higher goal commitment. Thus, both sets of goal levels should have a positive effect on state expectancy. Expression in hypothesis form yields the following:

H3 Goal level will be positively associated with state expectancy.

Hollenbeck and Klein (1987) proposed that expectancy of goal attainment is positively related to goal commitment. In the revised model, the subject's state expectancy is proposed to be positively related to goal commitment. Thus, state expectancy (formed from the antecedent trait expectancy and goal level) functions with attractiveness of performance to actually form the subject's goal commitment. Subjects high in state expectancy will have higher goal commitment than will subjects with lower state expectancy at a given level of attractiveness of performance and volition. In the consideration of state expectancy and attractiveness of performance, the model most closely resembles the traditional expectancy framework. The proposed relationship between state expectancy and goal commitment yields the following hypothesis:

H4 State expectancy is hypothesized to be positively associated with goal commitment.

The study site utilizes modular production operations ("team sewing"), and because of this, it is anticipated that there may be group effects on some individual perceptions. Therefore, two exploratory hypotheses are developed here to examine what effects, if any, groups will have on the preceding hypotheses.

Research has repeatedly demonstrated that members of groups with both individual and group goals perform substantially better than individual subjects. Bettenhausen (1991) notes that both Gowen (1986) and Mitchell and Silver (1990) find that substantial performance gains are realized when group goals are present, particularly when group goal and the goals of the group's individual members converge. Bettenhausen also notes that Klein and Mulvey (1990) find that group cohesion, group norms and group goal are all positively associated with group goal commitment and performance. Finally, Lichtman and Lane (1983) find that group member feedback on the relative difficulty of the goal is associated with performance differences.

Given the variables of interest in this research, it is not expected that groups will have an effect on the relationship between trait expectancy and state expectancy, on the relationship between attractiveness of performance and goal commitment, between goal level and state expectancy, nor on the relationship between state expectancy and goal commitment. This is not to say that group membership does not independently affect the levels of these variables; trait expectancy in particular is probably affected by group expectations. One factor that helps determine trait expectancy might be the relative success of the subject's group; the subject is in a group that has done well in the past and thus the subject's confidence in his or her ability to do well in the future is reinforced. However, another subject might report an equally high trait expectancy, but may base that expectancy on experiences with some other group, such as friends or family, or perhaps a previous work group. Both of these subjects should report higher state expectancies (at a given goal level) than would subjects with lower trait expectancies. Thus, the expected positive relationship between trait expectancy and state expectancy for the individual subject should not be affected by group membership. None of the

relationships hypothesized above should be affected by group membership; these relationships exist independently of the source of the magnitude of individual variables. Further, both Hollenbeck and Klein (1987) and Locke and Latham (1988) acknowledge that peer group influences the psychological environment of the subject, and both hypothesize that the influence of peer group norms is antecedent to the cognitive processes of this individual model. Thus, although peer group may influence the magnitude or the calibration of the range of measures that the subject reports, it still may not influence the relationships among those measures. The model will be supported if the relationships described in the hypotheses are not affected by group membership, even if the magnitude of individual measures are affected by group membership. Subjects have many factors in their lives that influence their perceptions, and their work group is a potentially powerful one. However, if there is no systematic effect on relationships (correlations) between measures attributable to groups, then group effects on measure magnitude remain one of a number of antecedent factors to the model. Following this reasoning the following hypotheses are derived:

H5a (Exploratory) There will be group effects on the magnitude of the measures used in this study.

H5b (Exploratory) There will be group effects on the relationships between variables described in Hypothesis 1 through Hypothesis 4.

SUMMARY

The review of goal theory and goal commitment literature demonstrates that there is considerable impetus to build a goal commitment model that uses an expectancy framework. The literature that was reviewed suggests that numerous suggestions have been made to use expectancy theory within the goal paradigm, although none effectively avoided the paradox that Garland (1984) and Eden (1988) worked to resolve. A goal/ expectancy model of goal commitment (Hollenbeck and Klein, 1987) was reviewed and critiqued, and was revised according to the literature. This revision yielded a working model of goal commitment from which hypotheses for the research were detailed.

The next chapter will outline the methodology of the study, including a description of the subjects and analysis.

CHAPTER 3: METHODOLOGY

OVERVIEW

The preceding chapter detailed a general model of goal commitment and a series of hypotheses were developed to examine the determinants of goal commitment. This chapter will detail the research site, research methodology, research instrument, the measures used in the study, and the analysis used in the study.

RESEARCH SITE

This research is conducted among the workforce of a large apparel manufacturing company. The company has made all of its team sewing facilities available for the study, allowing the possibility of collecting data from up to three-thousand workers. Three plants were selected for the present research, yielding a sample of about 1300 eligible workers.

The sewing workers in this company work in facilities that range in size from about 350 employees to about 750

employees. Employees work in "teams" of between seven and thirteen workers (depending on product), with each worker performing specialized activities in support of the team's production. Although the company officially stresses the importance of teamwork, team identity and uses group-based incentive payout, the teams are not self-managing. One company official referred to the team concept as "modular sewing" which is probably a more accurate description of the current status of the workgroups. The team system came on line over the course of the past three years; some plants (not used in this study) are still in the process of making the conversion from an individual piecework system to team sewing.

The team sewing concept was introduced into factories in order to reduce production costs. The modular concept has reduced in-process inventory and production time, and has substantially improved product quality. Employees initially resisted the team structure, partially because it changed what had been an individual work environment into an environment that required inter-dependence with other workers. Many employees were (and many still are) of the opinion that their wages would be diminished by the team structure.

When teams were initially formed, many employees formed teams with friends and family members (although they were cautioned not to do so). Many employees experienced problems with these teams and when teams were allowed to reform, employees formed teams based more upon work skills and work "attitude." At the time of the survey, all teams had been reformed at least once. When employees leave teams, other employees may bid to become members of that team. The team retains the right to decide who may join them. Management reports that new employees will quit if their only opportunity is to join the "bad" teams, which is an indicator of how much importance employees attach to being members of successful teams.

As noted earlier, teams consist of between seven and thirteen sewers (depending on product) working in close proximity to each other. Team members have specific sewing responsibilities; each is responsible for sewing a specific portion of the garment that the team is producing. Team members that have produced enough of their work to keep other team members supplied may get supplies for the team or use cross-training skills to assist in production bottlenecks within their team. Teams are also trained in

quality control skills, communication and problem-solving skills.

Employees have three types of goals against which they are evaluated; quality goals, attendance goals, and performance goals. All performance is measured at the team level and all but one of the goals are assigned. Teams set one goal themselves, a goal for production beyond the minimum goal set by the company. This is an unofficial goal, but it is set as a calibration point by the teams and they perform against this goal. To the team members, the group goal represents the performance necessary to achieve their desired hourly wage rate.⁵ Constant performance feedback is available to teams so that they may monitor their productivity. Rewards for performance are tied to production; production of the base goal (100%) results in payment to all team members of the base salary;

⁵ Pay at the sewing factories is based on a modified piece rate system, where a minimum performance standard has been set. Performance at this minimum standard is referred to as "100%," production over this amount is referred to by the percentage that the production is over standard (e.g., 110%, 130%, etc.). The percent terminology is pervasive; employees refer to their own sewing capability and the capability of others in percentage terms. Thus, when performance issues are raised in the survey, the most natural terminology is the percent system.

superior production results in additional payments. Employees are also permitted (in some facilities) to leave early when they have completed their base goal; thus employees can continue to produce and make extra money after the completion of the base goal, or take additional time-off.

The administrative structure, team environment and compensation system are the same for all three facilities. All that differs is that one of the facilities produces sweatpants and has teams one-half the size of the teams at the other two facilities. At the facilities with the larger teams, the structure of the work is no different, but each team has two lines of production within it. Since the work is almost identical and the management structures and systems are the same across plants, the data from all three plants are considered together. This also permits a sufficiently large number of teams to enable meaningful examination of team effects. Calibrations for between-plant differences are discussed in Chapter 4.

SURVEY INSTRUMENT

A survey instrument was developed to determine subject responses to the variables associated with the hypotheses developed in the last chapter. To develop the survey, meetings and focus groups were held with plant managers and employees to further determine the work context of the subjects in the study. By investigating the operations thoroughly, items are tailored to best reflect the work experience of the subjects. A preliminary instrument was designed and passed to top management for review. Following this, a pilot test was performed at a location which was not used in the actual study. After an examination of the results of the pilot test, the instrument was adjusted where necessary and prepared for the actual survey. Only one administration of the survey was required to collect the data relevant to the model.

The survey was administered on site, and special efforts were made to assure subjects that the project was in fact university research. This should help avoid respondent mistrust that could result in spurious survey responses. As was noted in Chapter 2, team goal levels were taken from company records. This required that sub-

jects indicate their team affiliation on the survey instrument. It is hoped that the relative anonymity of the team affiliation coupled with the presence of university researchers obviated any fears among the subjects that would cause them to respond less than candidly.

SURVEY ADMINISTRATION

The survey was administered at three sewing plants by teams of two to five survey administrators from Virginia Tech. Several teams at a time were brought to a conference room during working hours to complete the survey instrument; the number of teams surveyed at one time varied between plants (because of differences in team size). Survey administrators were in the room with the subjects at all times to answer questions and to keep subjects from talking to each other. Subjects were orally instructed to read all instructions carefully, to consider each item individually, and to complete the survey without talking to other employees. Subjects were also assured that their responses would be kept confidential. The actual survey instrument is reproduced in Appendix A (note: there are several items on the survey that are not used in this

study; they are included here only to show the survey instrument intact). Sections containing items related to this study are marked.

MEASURES

Wherever possible, the measures for this research were adapted from existing studies. By using previously validated measures, it is hoped that errors in construct validity can be avoided. The study requires four attitudinal measures and the external measure of goal level. Demographic data were also collected to provide a better description of the people who participated in the study.

Although all of the measures used in this study have been previously validated, it is important that their reliability be examined within the present sample where appropriate. Two measures used in the study require examination of their internal reliability: goal commitment and trait expectancy. The other measures used to examine the hypotheses are variations of magnitude scales that are additive in nature and do not have interpretable internal reliabilities. These sets of scales, which include the state expectancy scales and the attractiveness of

performance scales, will be discussed in terms of between scale relationships.

Goal Commitment

Goal commitment, the dependent variable in the model, was measured using a scale developed and tested by Hollenbeck, Klein, O'Leary and Wright (1989). They propose a seven item scale that has demonstrated convergent validity with force to attain goal, self-set goal--assigned goal discrepancy, and subsequent goal change. The scale (as measured by Hollenbeck, et al (1989)) has a coefficient alpha = .71.

Subjects were given directions to consider their team production goal and then respond to the following statements according to how they apply to it. Subject responses are on a six point Likert type scale, ranging from strongly disagree to strongly agree.

1. It's hard for me to take this goal seriously.
2. It's unrealistic for me to expect to reach this goal.
3. It is quite likely that this goal may need to be revised, depending on how things go.
4. Quite frankly, I don't care if I achieve this goal or not.

5. I am strongly committed to this goal.
6. I think that this goal is a good one to shoot for.
7. It wouldn't take much to make me change this goal.

These items were adapted in the questionnaire (see Appendix A) to fit the goal type and team environment. For this data, the goal commitment scale had a coefficient alpha of .710, which is precisely what Hollenbeck et al (1989) reported.

Trait Expectancy

Trait expectancy was measured with a twelve item scale of general self-efficacy developed by Sherer et al (1982). The use of a generalized self-efficacy scale is recommended for the measurement of trait expectancy by Eden (1988); the Sherer et al (1982) scale was used by Earley and Lituchy (1991) in their test of the Eden (1988) model. Sherer et al (1982) originally proposed a seventeen item scale; however, six of the items have a factor loading less than .5 and are dropped from the items used in this study. Subject responses were on a six point Likert type scale, ranging from strongly disagree to strongly agree.

1. If I can't do a job the first time, I keep trying until I can.
2. When I set important goals for myself, I rarely achieve them. (r)
3. I give up on things before completing them. (r)
4. When I have something unpleasant to do, I stick to it until I finish it.
5. When I decide to do something, I go right to work on it.
6. When trying to learn something new, I soon give up if I am not initially successful. (r)
7. When unexpected problems occur, I don't handle them well. (r)
8. I avoid trying to learn new things when they look too difficult for me. (r)
9. Failure just makes me try harder.
10. I feel insecure about my ability to do things. (r)
11. I give up easily. (r)
12. I do not seem capable of dealing with most problems that come up in life. (r)

For the data presented here, the trait expectancy scale had a coefficient alpha of .791 (Sherer et al (1982) reported a coefficient alpha of .89).

Attractiveness of Performance

Attractiveness of Performance was measured following a protocol proposed by Garland (1985) who notes that:

Performance valence is defined as a composite of the satisfactions an individual anticipates will be gained by producing at each of several different performance levels over a range of performances that might be considered. (Page 349-350)

Garland (1985) also notes that Vroom (1964) describes valence as anticipated satisfaction with the outcomes of performance. In models of the type described here or in Garland (1985), valence for performance outcomes are subsumed by valence (or attractiveness) of performance at various levels. Thus, rather than examine the satisfaction that a performance outcome (such as pay) can be anticipated to have, Garland (1985) proposes that the anticipated satisfaction with levels of performance be measured. The same technique was used by Earley and Lituchy (1991) in their examination of the Garland (1985) model and the Locke et al (1990) model. Items for this scale involve asking the subject to report on a Likert-type scale their anticipated satisfaction level for low performance, average performance, and high performance against their production goal. In the present study, satisfaction with performance

against team production goal will be measured with ten items assessing satisfaction with a range of potential performance levels. Items for this scale were developed after meeting with company officials and employees so that they best address the performance context. The items for this scale are as follows, with separate scales for team performance and individual performance. Subjects respond on a six point Likert type scale, ranging from very satisfied to very dissatisfied.

1. How satisfied would you be if your team sewed 100% for the week?
2. How satisfied would you be if your team sewed 105% for the week?
3. How satisfied would you be if your team sewed 110% for the week?

Two different sets of items, one measuring attractiveness of personal performance, the other measuring attractiveness of team performance, were included in the study. Attractiveness of personal performance represents the employees' satisfaction level with their own individual performance in helping their team succeed; Attractiveness of team performance represents the employees' satisfaction with the level of their teams' performance.

The two measures of attractiveness of performance (attractiveness of team performance and attractiveness of personal performance) have a correlation of $r=.656$ (see Table 3). These measures are quite distinct in wording (both within the items and the directions preceding the items) and physically separated in the survey instrument; thus, the high correlation between these scales is a good indication that they are in fact measuring a similar construct. Further, the variance inflation factor for each of these measure is well below the threshold that would suggest collinearity.

State Expectancy

Both Garland (1985) and Eden (1988) expressed concern over the way that state expectancy is normally measured and Eden (1988) suggests several different ways that state expectancy might be measured. Following Eden's suggestion, three different measures of state expectancy were collected for this research.

The first two measures are those used by Locke et al (1984) and Earley and Lituchy (1991). They derive from a traditional specific self-efficacy measure (specific to

the task group under investigation). The scale consists of a "magnitude component" and a "strength" component. The magnitude component is a summation of affirmative responses to a series of statements of "I can complete X units" that have ascending values of X. The range of values includes as a midpoint the performance average of study participants. Subjects are also asked to evaluate the probability of completing each of these levels of performance. The average of these probabilities constitute the "strength" component of the state expectancy scale. The two subsets of the scale comprise two different measures of state expectancy; magnitude (how much the subject anticipates accomplishing) and strength (the subjects confidence in producing at high magnitude). The specific items for this scale were developed after consultation with company officials and employees to best address the work context. The items follow the following format (with items ranging from low to very high performance):

1. If you compare yourself to other sewing workers in the plant, how do you think that you will perform? (Pick one of the following)
 - a. Better than 9 out of 10 co-workers.
 - b. Better than 7 out of 10 co-workers.
 - c. Better than 5 out of 10 co-workers.
 - d. Better than 3 out of 10 co-workers.
 - e. 9 out of 10 of my co-workers will perform better than me.

The correlations between the three state expectancy measures; magnitude, quantile and strength are shown (along with the correlations of the other variables) in Table 3. Magnitude and strength (which derive from a dependent item structure) are highly correlated at $r=.953$. The subject's anticipated quantile of performance is also significantly related to both magnitude ($r=.224$) and strength ($r=.328$). The high correlation between magnitude and strength may

largely be a function of the interdependence of the two items in the instrument construction. Further, an examination of the means and standard deviations of these two variables suggests that they are virtually identical, indicating that each time a subject indicated the ability to perform at a given level, the subject (with rare exception) indicated a "100%" confidence that he or she could perform at that level. There are two possible explanations for this effect: (1) That the subjects did not understand how to properly execute the items; or, (2) that the subjects had a substantial certitude of their performance capability. During de-briefing following the pilot administration of the survey, respondents indicated that they understood how to respond to the item. They also indicated that they truly felt confident that their projections of their ability level were completely accurate. Given that the subjects are fully aware of their performance speed (they have hourly, daily and weekly feedback) it is not surprising that subjects estimate performance levels with absolute certainty. Finally, the variance inflation factors for magnitude and strength were sufficiently high (11.1 and 11.8 respectively) to warrant regarding the measures as collinear.

There is also evidence that some subjects did not understand how to respond to the items used to assess magnitude and strength. An examination of frequency tables of the raw data showed that several subjects reported that they could not sew at the 100% rate. It is improbable that any employee would not sew at the 100% rate, given that operators that do not perform up to that rate are dismissed. Employees are fully aware that the 100% rate is required; one must assume, therefore, that any employee reporting an inability to perform at 100% did not understand how to respond to the items. 89 observations were dropped, either because no answer had been given to the magnitude and strength items or because answers indicated that the subject did not understand how to respond. There is more confusion in the responses to the strength component of the expectancy items. Respondents that indicated that they could perform at a given level often indicated a zero probability that they could successfully perform at the indicated level. A number of the subjects gave responses that were improbable. Given the demonstration of collinearity and given that the magnitude measure seems to have created the least confusion, only the magnitude measure will be retained for analysis.

ANALYSIS

The basic analysis for the study consists of path analysis to determine the viability of the causal model and examinations of regressions and correlations as necessary to examine specific hypotheses.

Path analysis allows for the examination of the causal ordering of the model, and has been used in previous research in goal theory (Earley and Lituchy, 1991). Path analysis requires that certain assumptions about the data to be analyzed are met. Specifically, path analysis requires that measurement be accurate and that the effects detailed in a model be one-way. The previously validated measures used in this research are as accurate as possible and the model specified here is recursive. Since the data meet these criteria, the use of path analysis is an appropriate method to examine whether the model fits the sample data.

Path analysis is based on a series of regressions which describe the causal relationships among measures in a proposed model. Traditional path analysis contained a number of assumptions that restricted the applicability of the analytic technique. However, the development of

computer programs capable of solving structural equation models has made path analysis a more useful technique. The program used to analyze the data here, called GEMINI, is specifically designed to analyze covariance structure equations for recursive models. The program permits analysis similar to that performed using LISREL VII or CALIS, and it is substantially simpler to understand. Additionally, GEMINI generates significance information on indirect effects, which is critical to the interpretation of the path analysis.

There are two principal effects of interest in path analysis; direct effects and indirect effects. Direct effects represent the effects of one measure of the model on another measure. Indirect effects are effects that a measure has on another measure through its action on an intermediate measure. In an examination of a path analysis, one is concerned with both types of effects. Both types of effects are examined for statistical significance and effect size. The presence of significant indirect effects indicate that components of the model perform a mediating role in a relationship between two other variables. When no indirect effects are present, then the relationships proposed in the model are independent of each other.

As was noted in the discussion of Hypothesis 5, it is imperative to verify the independence of the hypothesized effects from possible group influences. To accomplish this, the effects were examined using Within and Between Analysis (WABA) (Dansereau, Alutto and Yammarino, 1984). WABA allows the investigation of both whether a measure's magnitude is associated with group membership and whether an hypothesized correlation is predominantly at the individual or group level.

Although a complete discussion of WABA is well beyond the scope of this document, a brief outline of what WABA entails may be helpful. WABA consists of two separate analyses, WABA I and WABA II. WABA I is an examination of whether the variance in individual measures occurs predominantly within groups or between groups or is randomly distributed throughout the sample (the equivocal condition). If a significant amount of variation in an individual variable occurs within groups, then there is a group effect on that variable. This would mean that there is a normal distribution of a measure within each workgroup, and that the range of this distribution differs between groups. If a significant amount of the variance in a measure is found between groups, then a group effect is

also present. In this case, the primary differences in a measure's variance is between work groups; each group reports scores internally similar and different from other groups. A normal distribution is achievable only by aggregating all groups. In the equivocal condition, the measures are simply normally distributed throughout the sample. WABA I was used to test Hypothesis 5a; significant within or between group effects would indicate that there are group effects on measures; the equivocal condition would indicate that there are no group effects on the measures. WABA II allows the examination of correlations between measures, and determines whether a correlation is significantly greater between groups, within groups, or equivocal (no group effects). If a significantly greater correlation is found within groups, then a group effect is present and the effects associated with the correlation are the result of conditions inherent to each group independently. Within group effects indicate that there is a distribution of both measures within the group, and that the measures are correlated. Further, it means that the correlation between the measures exists predominantly when the two measures are examined on a "group by group" basis. If between-group correlations

are significantly greater, then the effect associated with the correlation is again assumed to demonstrate group effects, but this time is the result of measures correlated between groups. In this case, the distribution of both measures within an individual group would be limited while remaining related. The comparison of the full distribution of the measures is only possible by examining the relationship among the measures combined for all groups.

To illustrate the interpretation of WABA II results, consider two variables, A and B, and imagine that data is available for several groups of workers. WABA I has indicated that that A and B each vary within groups, meaning that workers report low, medium and high A and B. WABA II within-groups effects would indicate that that those that reported low A reported low B, medium A medium B, and high A high B. If correlations for the two measures were examined for all subjects combined, they would be lower than when examined within groups. This would be because the measures distributed within each group are affected by calibrations of the measure at the group level. One group might report a range of 1 to 5 for measure A and 3 to 7 for measure B; another group might report ranges of 3 to 6 for A and 1 to 4 for B. Within these

groups, the two measures might be highly correlated; taken in aggregate, they lose significance. A between-groups effect would indicate that members of one group report high A and high B, another group medium A and medium B, and yet a third group low A and low B. Group effects continue to exist because the association of highs, mediums and lows are all taking place at the group level; however, correlations are most significant when the measures are compared in aggregate. Finally, the equivocal condition would indicate that the measures are distributed throughout the sample without group effects, and that the correlations appear strongest examined in the aggregate.

To examine the effect of groups as per Hypothesis 5b, the following would apply: In the equivocal condition, groups do not have an effect on the relationships of measures used in the individual model; if the distribution of measures is not influenced by groups, nor the relationships among those measures, then an individual model may be assumed. If a within-group effect is discovered, it will mean that the individual model is functional, but that its relationships are best examined within the context of individual work groups. A between-group effect would indicate that the group tends to dominate the cognitions

of its individual members (at least those measured here)
and that a group-based model should be examined.

CHAPTER 4: RESULTS

OVERVIEW

Chapter 3 described the methodology used to test the hypotheses detailed after the literature review in Chapter 2. This chapter will present the demographic characteristics of the sample and will present the results of the analysis described in Chapter 3. The analysis will be presented in two parts. The first part will report the analysis of the primary hypotheses (1-4) and an examination of the viability of the model using path analysis. The second part will report the results of the WABA analysis used to determine if group effects are present in the data, which tests hypotheses 5a and 5b.

DEMOGRAPHICS AND SURVEY RESPONSE

One thousand, two hundred and twenty-seven sewing workers completed the survey, which represents all of the eligible workers at the plants on the days that the survey was administered. Mid-week days were chosen to administer

the survey because plant managers indicated that these were the days that had the lowest absenteeism. There were no abnormal absence patterns reported that might have influenced sample characteristics. One hundred and thirty-two subjects were dropped from the analysis because they were not part of a sewing team or because they functioned as inspectors, dropping the number of usable responses to a maximum of 1095. The remaining subjects were all members of sewing teams that produced either sweatshirts, sweatpants, or tee-shirts.

Table 1 shows the number of responses available for each demographic variable, as well as its mean and standard deviation. The subjects were 97% female, at an average age of 33 years old. Subjects had an average of 5 years experience as sewing machine operators, and an average of 2 years experience in team sewing. Subjects were predominantly European-Americans (55.6%) and African-Americans (36.6%), with far lower representations of Asian-Americans (2.0%), Native-Americans (2.0%) and Latin-Americans (0.9%). A majority of respondents had completed high-school (64.8%), and some had attended college (15.1%) or had a college degree (2.2%). Only 15.8% of the subjects had not completed high-school.

Table 1. Demographic Information for Study Respondents

Variable	N	Mean	Std. Deviation
Yrs. in Team Sewing	1051	2.15	1.56
Tenure w/ Company	1064	5.11	3.91
Married (yes=1)	1090	.59	.49
Dependents	1059	1.44	2.06
Age	1059	33.31	9.27
Gender (Female=1)	1090	.98	.17
Education			
Less than High School			14.8%
High School Degree			60.5%
Some College			20.6%
College Degree			3.0%
Race			
Asian-American			1.7%
African-American			25.4%
Native American			2.9%
Latin-American			0.2%
European-American			67.4%
Other			1.2%

As was noted in Chapter 3, the data for all three plants are considered together. Because of this, it is imperative that any structural differences between facilities be identified and steps taken to account for the

effects of these structural differences on the analysis. Four of the measures of interest in this study, attractiveness of team performance, attractiveness of personal performance, goal level, and magnitude, are dependent on production expectations that are plant specific. Production rates and performance requirements may have different calibrations at different facilities, such that a worker of average ability at one facility may average a higher rate than an average worker at another facility. Each of these four measures are expressed in terms of percentage of base production, and therefore may be subject to differences in calibrations between plants. To avoid effects on the analysis, all have been standardized within-plant to a common mean of 100. Through standardizing, a continuous scale is retained, but the effects of calibration differences are removed. The other psychometric scales, although sometimes differing among subpopulations, are assumed, for this analysis, to be independent of structural effects.

PRIMARY ANALYSIS OF THE MODEL (HYPOTHESES 1-4)

This section presents a test of the modified goal commitment model described in Chapter 2 and diagrammed in Figure 3. The model identified a dependent variable, goal commitment, and four independent variables in a specific causal pattern and broken into separate hypotheses, H1 to H4. Following the identification of the viability of the model, the results will be restated in relation to each hypothesis. The descriptive statistics, correlations, and regression results used in this discussion are presented in Tables 2, 3, and 4, respectively. Table 2 presents the means and standard deviations of the measures used in the study. Table 3 presents the Pearson's correlations among the measures used in the study, and Table 4 presents the results of the regression analysis.

Described in the terms of path analysis, the model consists of three exogenous variables (trait expectancy, goal level, and attractiveness of performance) and two endogenous variables (goal commitment and state expectancy). Goal commitment is shown in Figure 3 to be a function of the exogenous variable attractiveness of performance and the endogenous variable, state expectancy,

Table 2. Descriptive Statistics (Means and Standard Deviations)
among the Principal Attitudinal Variables

Variable	n	Mean	Std. Deviation
1. Trait Expectancy	1095	4.780	0.625
2. Team Goal Level (decimal)	1090	STANDARDIZED WITHIN PLANT	
3. State Expectancy (quintile)	1068	3.690	.989
4. State Expectancy (magnitude)	929	8.238	2.194
5. Attract. of Team Performance	1088	STANDARDIZED WITHIN PLANT	
6. Attract. of Self Performance	1092	STANDARDIZED WITHIN PLANT	
7. Goal Commitment	1090	119.768	14.637

Table 3. Correlations among Principal Attitudinal Variables

Variable	1	2	3	4	5	6
1. Trait Expectancy						
2. Team Goal Level	.091*					
3. State Expectancy (magnitude)	.184*	.256*				
4. State Expectancy (quantile)	.190*	.186*	.314*			
5. Attract. of Team Performance	.155*	.486*	.381*	.242*		
6. Attract. of Self Performance	.188*	.391*	.448*	.238*	.720*	
7. Goal Commitment	.225*	.108*	.039	-.013	.103*	.101*

* p less than .01

Table 4. Summary of Regression Results (Dependent Measure is Goal Commitment)

Variable	Estimate	T Value	Type III SS	F
Attract. of Pers. Perf.	-.001	-.02	.001	.00
Attract. of Team Perf.	.021	1.03	.206	1.06
Trait Expectancy	.115	4.66*	4.25	21.74**
Magnitude	-.003	-.35	.023	.12
Quantile	-.033	-2.03*	.803	4.10**
Goal Level	.002	2.46*	1.18	6.06**

R-Square = .040 F = 6.41**

* T probability less than .05
 ** p<.05

which is in turn a function of the exogenous variables trait expectancy and goal level.

As noted earlier, two measures were collected for state expectancy (magnitude and quantile) and for attractiveness of performance (attractiveness of team performance and attractiveness of personal performance). To use these multiple measures in the most efficient manner, path analysis was performed using a form of structural equations analysis (GEMINI) which permitted the use of all measures in a single analysis, and which provides information about indirect effects and their significance. A diagram of the model as analyzed is presented in Figure 4. Trait expectancy and goal level are shown causally linked to state expectancy (i.e., to the measures magnitude and quantile). Likewise, goal commitment is shown linked to attractiveness of performance (i.e., to the measures attractiveness of team performance and attractiveness of personal performance). Goal Commitment is now presented as a function of attractiveness of performance-team and attractiveness of performance-personal (attractiveness of performance) and state expectancy-magnitude and state expectancy-quantile (state expectancy).

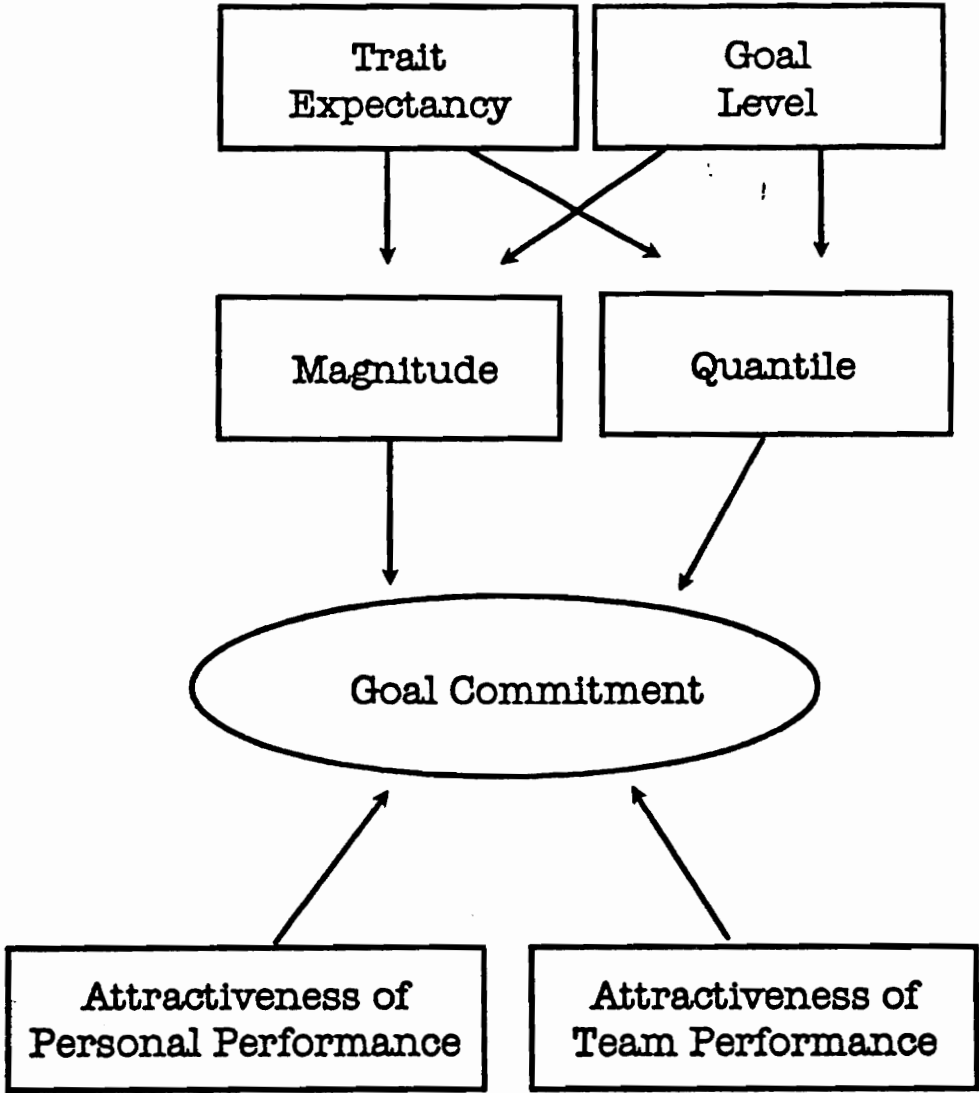


Figure 4. Revised Model: Measures used in Analysis

A summary of the regression results is presented in Table 4. The analysis is an OLS regression using goal commitment as the dependent measure and state expectancy-magnitude, state expectancy-quantile, attractiveness of performance-team, attractiveness of performance-personal, trait expectancy and goal level as independent measures. The table presents (from left to right) the independent measure, its estimate, the T value of the estimate, the Type III sum of the squares, and the F value of the Type III sum of the squares. In the regression, trait expectancy presents a significant estimate in the regression (.160), along with goal level (.002) and state expectancy-quantile (-.033). No other measures are significant in the regression.

Figure 5 presents the path co-efficients from the path analysis of the data. The analysis of the data indicates only partial support for the model. Neither model has significant paths between any of the state expectancy measures and goal commitment. Further, neither of the measures of attractiveness of performance has a significant path to goal commitment. However, significant paths do exist between goal level and trait expectancy and each of the measures of state expectancy. This analysis thus

supports the portion of the model that describes the formation of state expectancy perceptions and fails to support the antecedent relationship of state expectancy and attractiveness of performance to goal commitment.

At this juncture, the findings will be reported according to the hypotheses detailed in Chapter 2.

H1 Attractiveness of performance will be positively associated with goal commitment.

This hypothesis is weakly supported. Both measures of attractiveness of performance (attractiveness of team performance and attractiveness of personal performance) were significantly correlated with goal commitment. However, the effect size is extremely small, ($r=.101$, $p<.01$ for attractiveness of personal performance and $r=.103$, $p<.01$ for attractiveness of team performance) indicating only a minor inter-relationship between the attractiveness measures and goal commitment. Further, there was no significant path coefficient between goal commitment and either of the measures of attractiveness of performance. These results do indicate, however, that a subject's goal commitment is related to the subjects' decisions about

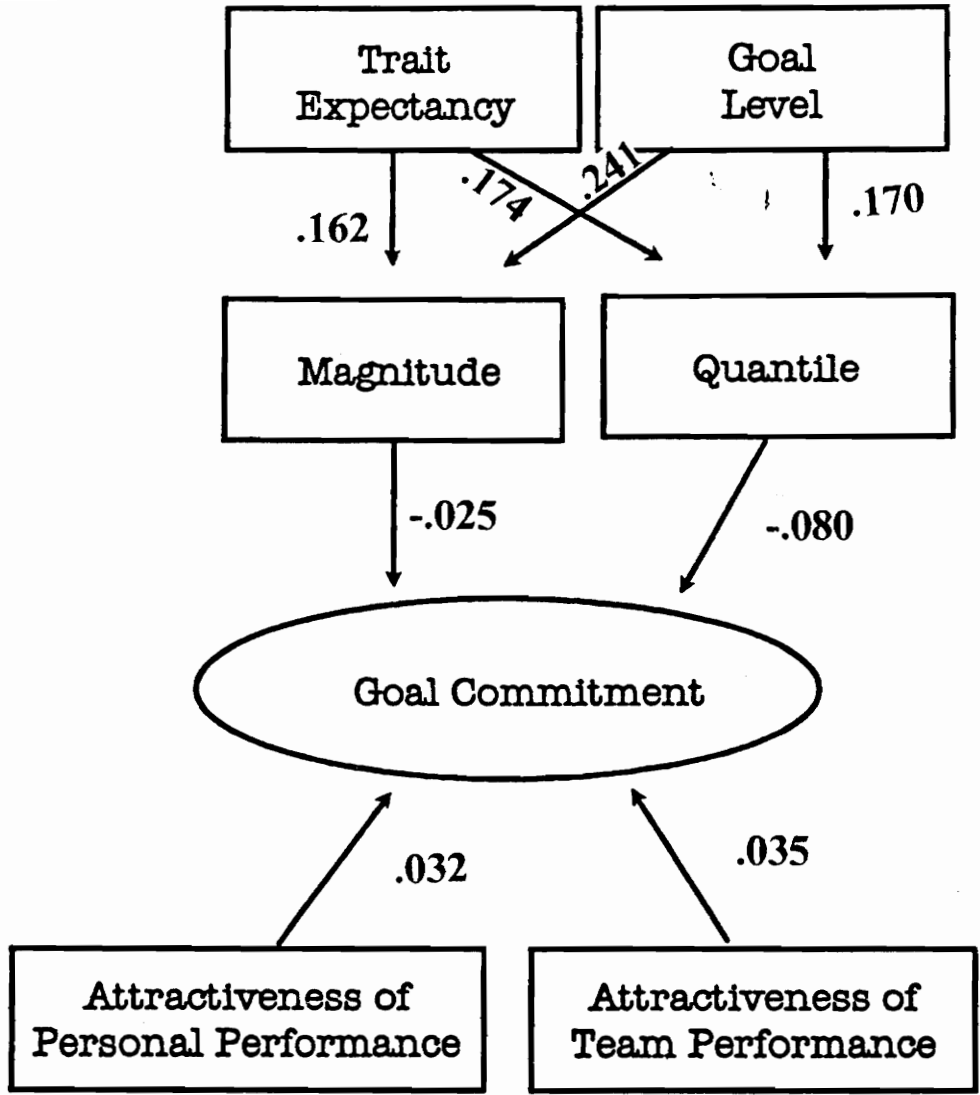


Figure 5. Path Co-efficients of Revised Model

attractiveness of performance, although there is no support for a causal relationship.

H2 Trait expectancy is hypothesized to be positively associated with state expectancy.

This hypothesis is supported. Trait expectancy is positively correlated with magnitude ($r=.184$, $p < .01$) and quantile ($r=.190$, $p < .01$). This indicates that the subjects' perceptions of their general self-efficacy are correlated with the formations of their state expectancy.

H3 Goal level will be positively associated with state expectancy.

This hypothesis is partially supported. Goal level is significantly correlated with state expectancy-quantile ($r=.186$, $p < .01$) and with state expectancy-magnitude ($r=.256$, $p < .01$). This indicates that subjects' goal level has some relationship with their assessment of how well they will do relative to others and with how well they will do in an absolute sense.

H4 State expectancy is hypothesized to be positively associated with goal commitment.

This hypothesis is not supported. Neither measure of state expectancy is significantly correlated with the measure of goal commitment nor is there a significant path between either of the state expectancy measures and goal commitment. The regression results indicate, however, that a small (-.03) significant contribution to explained variance is made by state expectancy-quantile.

The analysis of the data indicate only partial support for the model; trait expectancy and goal level are both antecedent to state expectancy-quantile, and state expectancy-magnitude. No support is found for the causal antecedents of goal commitment (even though there are significant correlations between the attractiveness of performance measures and goal commitment). An examination of the correlation analysis indicates that although not specified in the model, trait expectancy has a large and significant correlation with goal level ($r=.306$, $p < .05$, see Table 3). An examination of the regression results in Table 4 also demonstrate that trait expectancy explains a significant proportion of the variance in goal commitment. Finally, a post hoc path analysis indicates that: (1) trait expectancy has a large and significant path to goal commitment (.226) and that there are no indirect effects

associated with the relationship between trait expectancy and goal commitment (e.g., trait expectancy has only a direct effect on goal commitment, and does not operate through another measure, such as quantile or magnitude).

EXAMINATION OF TEAM EFFECTS (H5A AND H5B)

As has been noted in Chapters 2 and 3, the subjects that participated in this study are divided into teams or production modules. To test for significant differences in the proposed relationships among the measures of interest, a within and between analysis (WABA) was performed on the data. The results of this analysis are presented in Table 5.

WABA generates a within-cell (within team) correlation and a between-cell (between team) correlation, as well as an overall correlation. All three are indicated in the table. To determine if the within-cell correlation is significantly greater than the between-cell correlation (or vice-versa), a Z statistic is also computed for each set of correlations. If the Z statistic is greater than 1.645, then one would interpret it to mean that the between-cell correlation is significantly greater than the within-cell

correlation, and that the appropriate level of analysis is between whole teams. If the Z statistic is less than -1.645, then that would be interpreted to mean that the within-cell correlation is significantly greater than the between-cell, and that the appropriate level of analysis is the team itself. If the Z statistic is not significant (e.g., not greater than 1.645 nor less than -1.645) then the overall correlation determines the existence of effects. If it is significant, then the entire work site (individual level) is the appropriate level of analysis and teams have no significant effect on the relationships between the measures. If there is no significant overall correlation and no significant Z statistic, then there is no expected relationship between the measures. Thus, Hypothesis 5(b) is supported if there are Z statistics greater than 1.645. Table 5 also shows the results of a GLM/ANOVA between teams to determine if there are significant differences in the magnitude of the measures between the teams. The F statistic for this analysis is listed next to each measure.

The exploratory hypothesis consisted of two parts, H5a and H5b. Each of these hypotheses is discussed below.

Table 5. Results of the Within and Between Analysis (WABA)

Variable	F	1	2	3	4	5	6
1. Trait Expectancy	.96						
2. Team Goal Level	99.99**	.091(overall) -.013(within) .270(between)*					
3. State Expectancy (magnitude)	2.73**	.184	.255				
		.166	.001				
		.270	.478*				
4. State Expectancy (quantile)	2.06**	.190	.186	.314			
		.186	.017	.245			
		.250	.435*	.506*			
5. Attract. of Team Performance	10.12**	.155	.486	.381	.242		
		.085	.001	.130	.094		
		.375*	.624*	.731*	.499*		
6. Attract. of Pers. Performance	5.48**	.188	.391	.448	.239	.721	
		.143	.007	.283	.143	.534	
		.428*	.606*	.735*	.469*	.914*	
7. Goal Commitment	1.44**	.224	.108	.039	-.014	.103	.101
		.222	-.011	-.004	-.059	.036	.041
		.210	.254*	.187*	.184*	.280*	.303*

** p < .01
* Z > 1.645

H5a There will be group effects on the magnitude of the measures used in this study.

This hypothesis is partially supported. As indicated by the F statistic shown in Table 5, there are significant between-team differences in goal level, state expectancy-quantile, state expectancy-magnitude, attractiveness of performance-team, attractiveness of performance-personal, and goal commitment. No between-team differences were found for trait expectancy. These results indicate differences between teams on the magnitude of several measures.

H5b There will be group effects on the relationships between variables proposed in H1 through H4.

This hypothesis is partially supported as well. An examination of Table 5 indicates that several correlations are primarily the result of between cell effects. For the sake of clarity, the between-team correlations will be discussed in relation to each of the primary hypotheses.

H1 Attractiveness of performance will be positively associated with goal commitment.

This hypothesis is supported. Both measures of attractiveness of performance (attractiveness of team performance and attractiveness of personal performance) were significantly correlated with goal commitment at the between-team level with correlations of $r(b)=.280$ and $r(b)=.303$ respectively. This indicates that teams whose members have higher goal commitment also have members that value higher performance.

H2 Trait expectancy is hypothesized to be positively associated with state expectancy.

The support found at the individual level for this hypothesis is not changed by the WABA analysis. No significant between-team effects were found for the relationships between these measures. The correlations at the individual level of analysis represent their predominant interrelationships.

H3 Goal level will be positively associated with state expectancy.

This hypothesis is supported at the between-team level. Goal level is correlated with quantile ($r(b)=.435$) and with magnitude ($r(b)=.478$). This indicates that on a team by

team basis, subjects' goal level has a significant relationship with their assessment of how well they will do relative to others and on how well they will do in an absolute sense.

H4 State expectancy is hypothesized to be positively associated with goal commitment.

This hypothesis is supported by the WABA analysis. Both magnitude and quantile are significantly correlated with the measure of goal commitment ($r(b)=.187$ and $r(b)=.184$, respectively). This indicates that teams whose members have higher expectations of their own performance will also have members whose commitment to their performance goals is higher.

The preponderance of significant between effects indicates that the effects predicted by the H1 through H4 are found predominantly at the team level, and that the lack of support for the model may largely be a function of confounding team effects.

SUMMARY

Only partial support was found for the relationships proposed by the model at the individual level of analysis. Trait expectancy and goal level were found to be antecedents of state expectancy (for one measure) and significant correlations were found between the attractiveness of performance measures and goal commitment. No support was apparent in the path analysis for the causal antecedents of goal commitment. Post hoc analysis indicated that trait expectancy is a significant and powerful predictor of goal commitment, although this relationship is not proposed in the model nor in the literature that supports the model. Finally, WABA indicated that there are significant team effects present in all of the hypothesized relationships but Hypothesis 2.

This chapter has presented the results of the analysis detailed in Chapter 3 and has tested the hypotheses discussed in Chapter 2. The next chapter will present a discussion of the results of the analysis and draw conclusions, will discuss the practical and theoretical implications of the research, will discuss the limitations

of the present research and will discuss directions for additional research that are suggested by this study.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

OVERVIEW

Chapter 4 presented the results of the analysis of the data described in Chapter 3. In summary, the results are:

1. The model was only partially supported by individual-level analysis: there were small significant correlations between goal commitment and attractiveness of performance. Path analysis indicated support for causality of trait expectancy and goal level on state expectancy. No support was found in the path analysis for any causal effects on goal commitment (with regard to the original model).
2. An examination of the correlations and regression results, coupled with a post hoc path analysis, indicates that trait expectancy is a powerful and independent predictor of goal commitment.
3. WABA analysis indicated that there were significant team effects for all but one of the relationships in the model (trait expectancy x state expectancy). The overall preponderance of team effects indicates that analysis at the individual level is confounded by the presence of team effects.

This chapter will examine these findings and will raise critical issues for future research. The first section of this chapter will consist of a discussion of the results of the analysis and of the conclusions drawn from

these results. This section will also include a discussion of the practical and theoretical implications of the study. The second section will entail a discussion of the limitations of the study. The final section will present a set of recommendations for future research.

A review of the analysis in the preceding chapter yields several conclusions and raises several points of discussion.

INTEGRITY OF THE MODEL

The model developed in Chapter 2 (presented in Figure 3) is only partially supported by an individual-level analysis of the data. Trait expectancy and goal level were found to be antecedent to the formation of state expectancy perceptions (as predicted by both Eden (1988) and Earley and Lituchy (1991)) and attractiveness of performance was found to have a small but significant relationship with goal commitment. Both state expectancy and attractiveness of performance were found to have no significant causal linkages with goal commitment at the individual level of analysis. Finally, a post hoc analysis showed that trait expectancy is a significant predictor of goal commitment.

The results of the WABA analysis lead to a different interpretation of the robustness of the hypotheses derived from the model tested here. The results of the WABA analysis indicate that there are significant relationships among the measures, but that the relationships are only revealed in a between-team analysis.

There are also between-team effects on the magnitude of all of the attitudinal measures except trait expectancy. Team differences in goal level are to be expected; teams set their goal levels, hence they are almost different by definition. But between team differences in attractiveness of performance and state expectancy indicate that the team has a substantial impact on certain aspects of the individual's work-related attitudes. Further, the teams' effect on the strength of relationships between measures indicates that not only are attitudinal calibrations of team members affected by their team membership, but that the relationships between team members' attitudes are also affected by team membership. Thus, teams have the effect of setting not only the level of an individual's response on a certain attitudinal measure, but of causing all of the individual's responses to correspond to each other at a team-specific level. Finally, although teams have a pro-

found impact on the level and variance of their members' responses, when teams are examined as wholes (as in WABA), hypothesized inter-relationships among attitudes become apparent. Thus, the team influence does not thwart the relationships hypothesized in Chapter 2. It is simply that it is the team as a whole that determines attitudes and inter-relationships among attitudes.

The team effect on the measures reported here supports the inclusion of peer group influences in the Locke et al (1988) model. The analysis indicates that the individual calibrates his or her expectations of performance attractiveness, performance expectations, and goal commitment based on the local expectations of their team. Further, the processes leading to the team members' formation of team-affected attitudes appear to reflect the cognitive model proposed for individuals. Although causality cannot be inferred from a WABA analysis, the strength of the between-team effects indicates that the model proposed in Chapter 2 is fundamentally robust.

The demonstration of the existence of between-team effects also helps to explain the relatively small amount of variance in goal commitment explained by the model ($R\text{-square}=.04$, $p<.01$). The variance explained in the

individual-level regression would be seriously attenuated by between-team effects. An examination of the between-team correlations in Table 5 show that the inter-relationships between goal commitment and the other measures are substantially larger than the correlations seen at the individual level, indicating that significantly more variance in goal commitment can be explained at the whole team level of analysis.

It is also interesting to note that the team has no significant influence on the individual's general self-efficacy (trait expectancy) perceptions. The team seems able only to calibrate those individual attitudes associated with the immediate work environment, and does not appear (at least for self-efficacy) to influence the individual's more general perceptions.

RE-SPECIFYING THE MODEL

The post-hoc analysis showed that trait expectancy was by far the most powerful antecedent of goal commitment at the individual level of analysis, and that the rest of the hypothesized antecedents of goal commitment were correlated with goal commitment when teams were considered

as wholes. The model of goal commitment that one would deduce from the analysis of these data is somewhat different from the model derived from the goal commitment literature in Chapter 2.

The major difference between the individual-level effects detailed in H1 through H4 and the effects found in both the individual and WABA analysis presented in Chapter 4 is that the predicted effects take place between teams. The results of the WABA analysis indicate that individuals do possess certain correlated attitudes, and that individuals within a team will have similar sets of responses to attitudinal measures. This suggests that the cognitive processes that take place within the mind of an individual team member may be affected by their perceptions of the attitudes of other team members. Thus, the team collectively (although probably not explicitly) may make a determination about how it feels, and team members then reflect that perception in their individual responses. Although a team is not capable of a cognitive decision, the interactive environment of the team allows the cognitions of its members to influence each other until all of the team members' attitudes begin to reflect a common understanding. Further, the inter-attitudinal relationships

proposed in H1 through H4 continue to be apparent, because the cognitive processes described in the model continue to exist, albeit in a collective system.

An alternative to team members developing similar attitudes within the team environment is the possibility that teams select members that already have somewhat similar attitudes, and that those attitudes are then coalesced into the "team" attitude. Further, individual employees may seek to associate themselves with others that have similar attitudes, and, as teams begin to form, individuals are attracted to teams with which they believe that they have a fit. The teams whose members were studied here were formed by voluntary association over a year before. It is possible that some of the similarity of attitudes within the teams reflects this element of selection, or that the similarity of attitudes reflects both the powerful pressures of group expectations coupled with inherent team member similarity as the result of the membership selection processes.

The relatively low variance explained by the regression analysis also raises some question about the basic structure of the model. A large body of research has demonstrated linkages between goal commitment and perform-

ance (predominantly in the lab), and Earley and Lituchy (1991) demonstrated that models similar to the one tested here are related to performance in the lab. Further, the literature reviewed in Chapter 2 demonstrated support for the goal commitment model shown here, where a model similar to those tested by Earley and Lituchy (1991) is used to predict goal commitment as an intention to perform. Is it possible that goal commitment, at least as measured here, is either not a relevant measure in the field or occupies a different position in a field performance model?

Contrary to Hollenbeck and Klein (1987) and Locke et al (1988), neither Eden (1988), Garland (1984, 1985), nor Early and Lituchy (1991) proposed models that positioned goal commitment as an intermediate variable between state expectancy, attractiveness of performance, and performance, so the present findings do not necessarily contradict any of their work. However, given the substantial body of evidence that indicates a relationship between goal commitment and performance, and given the strong evidence provided by both Locke et al (1988) and Hollenbeck and Klein (1987) that goal commitment should be included in a performance model, one would have expected a higher amount of the variance in goal commitment to have been explained

in spite of the substantial team effects. The model that was proposed in Chapter 2 was designed to predict the intention to perform; the relatively small amount of variance explained by the model may indicate that goal commitment (at least as measured) does not represent the intention to perform in the present setting.

Locke and Latham (1990) note that goal commitment in the field environment may be a much more elusive construct than it is in the lab (although they focus on the goal commitment of managers). Employees in the field environment have substantially greater outcomes associated with their actions than do subjects in the lab. As such, their sense of the inflexibility of their goals may have relatively little influence on their performance. They are required to perform as they have performed in the past. Given this, perhaps one should examine what role goal commitment plays in a goal/ expectancy model of performance that will withstand field examination.

Goal commitment (as measured) may indeed retain a relationship with performance, but it is questionable whether or not (given the results of the present analysis) it should really be considered a measure of immediate intention, and not more a measure of goal acceptability.

It is important to consider the work environment in which this study has been conducted. The sewing workers have an average of five years of sewing experience and are performing a set of tasks that are reasonably predictable and where there is an experiential understanding of the types of problems that may arise and how to cope with them. One might assume that these workers have very little question about how well they can do; they have repeatedly demonstrated precisely what they are capable of doing in this environment. Thus, while their assessment of how well they will do may have some relationship with performance, it may have little to do with their reported goal commitment. In an environment such as this, goal commitment may reflect less the intention to perform as much as it reflects an assessment of the value of continuing to perform. As such, goal commitment (as measured) may be a much better meter of how much the employee believes that he or she should continue to perform at their current level. This is an evaluative consideration of goal commitment, not as an expression of intention to perform, but as an evaluation of the goal. An examination of the items in the Hollenbeck et al (1989) goal commitment measure does not preclude this possibility. The items

are essentially evaluative in nature and do not specifically ask about intention to perform. They ask the subject to essentially evaluate their performance goal and their feelings about the goal. In the lab, this measure (and the evaluative construct that it gauges) successfully proxied the subject's intention to perform. It is possible that in the current environment, the measure (and its underlying construct) may be a less successful proxy of intention. Intentions are always difficult to measure, and as Locke and Latham (1990) note, goal commitment has been particularly elusive in field research. Employees in this sample are functioning against goals that may have been set months ago; they know whether their goals are realistic and whether completing the goal is satisfying to them. In an environment such as this, where the goal has been repeatedly tested, goal commitment as an intention to direct effort, planning and resources may no longer be germane. Employees are resigned to this goal, some thinking that it is too low, some thinking that it is too high, some probably thinking that it is just right. But all of these employees, regardless of their opinion about the goal, have done what is necessary to perform at an acceptable level. Thus, employees' responses to the goal

commitment items may be less an expression of intent than an assessment of goal acceptability.

The strong relationship between trait expectancy and goal commitment provides a possible clue to the meaning of the goal commitment measure with these employees. Those with higher trait expectancy had higher goal commitment, indicating that those with a higher sense of self-efficacy also found their teams' goals more acceptable. Employees that believe more strongly in their own self-efficacy may also be more likely to believe that they are capable of continuing to meet a goal, particularly if that goal is a challenging one. Supervisors report that teams tend to set goals that are challenging, and which provide employees a desired level of pay. Individuals with higher self-efficacy may be responding to this challenge with a more pronounced sense that the challenging goal is a good one. If it could be demonstrated that those with greater dissonance between their personal goals and their teams' goals were reporting lower goal commitment (using the present measure), and that those with higher self-efficacy were experiencing less dissonance with challenging goals, one could infer that the goal commitment measure used here is probably measuring something more akin to goal accept-

ability than goal commitment as an intention to perform. If this were the case, then the goal commitment measured here would occupy an antecedent role to performance similar to state expectancy or attractiveness of performance.

IMPLICATIONS OF THE STUDY

Had the results of this study occurred in isolation, one would naturally be concerned that they are sui generis. However, the results of this research reflect the results of Earley and Lituchy (1991) in their lab studies, although the effects are apparent at a team (rather than individual) level. All of the measures that the present analysis found to be related to goal commitment at the between-team level were found to be related to performance at the individual level by Earley and Lituchy (1991). Thus, the model described in Chapter 2 now has shown itself to be robust both in the lab and in the field.

The strong relationship found between trait expectancy and goal commitment is very similar to the relationship between trait expectancy and performance found by Scott and Townsend (1992). They found, in a field study using a similar Eden (1988) model formulation, that trait ex-

pectancy and goal level were the only significant antecedents to performance. In their study, however, the intermediate role of state expectancy was not significantly supported, although they note that their operationalization of the state expectancy measure was problematic. The similarity of the results of this study to Scott and Townsend (1992) is also interesting because the two samples' occupations differ, as do the measures used in the two studies.

The convergence of results between Scott and Townsend (1992) and the current study indicates that the role of trait expectancy is very important to employee performance. A substantial body of research has been devoted to examining the role of specific self-efficacy to performance, but little has been done using a general self-efficacy measure.

The demonstration of a performance model that functions in a field setting can have important practical implications. This model, in particular, can be useful for managers in that it describes a system that incorporates both goals and incentives (e.g., attractiveness of performance) into a model of worker motivation. This research underscores the critical importance of managing

employees with a functional system of both goals and incentives, as both have an influence on the employees' motivation to perform. Further, the results emphasize the powerful influence that teams have on the motivation of individual workers. When working in a team-based environment, managers must influence the motivation of the entire team and not just one or two individual members.

There are also managerial implications associated with the importance of trait expectancy. As Eden (1988) noted, trait expectancy is largely a function of past success. Managers that wish to exploit the motivational potential of trait expectancy can begin to "manage for success", in the sense that they can create opportunities for employees to gain confidence-building skills and to experience successful work activities. Managers can provide employees with necessary training and resources, along with direction, and create an environment where the employee can successfully achieve desired objectives. By enhancing the employee's trait expectancy through success experiences, the manager creates an employee who is more likely to perform better and (as the current analysis indicates) is more likely to accept challenging goals.

The research implications of this study are fairly straight forward. Although there are certainly limitations to this research (they are discussed separately below), this project has in most respects used the best available measures to test broadly accepted theory. What differs between this study and so many of its predecessors is that this is a field study using theory and measures that were developed and successfully tested in the lab. The successful demonstration of a motivation model in the field adds important support to the efforts of researchers that have developed similar models in the lab. The demonstration of the viability of the present model is noteworthy too because it represents a synthesis of a number of models currently extant. As such, this research should provide the basis for additional exploration of similarly constituted models both in the field and in the lab.

This research also underscores the importance of team effects on individual perceptions in the work environment. In this sample, the individuals' perceptions have apparently been subsumed by their teams' perceptions. Additionally, it appears that inter-attitudinal effects that are expected to be the result of individual cognitive processes will be manifest by the team as a whole. These

findings support the motivational literature that suggests that teams develop a collective identity and collective motivation.

Finally, this research is one of a very few studies that have sought to test a theoretically-based model of goal commitment in a field setting. As such, it extends our understanding of the applicability of a lab-developed theory to a sample of real workers and raises questions about the changes that may need to be made to goal/ expectancy theory in order to remain robust in the field environment.

LIMITATIONS OF THE STUDY

There are often limitations associated with field research. Preeminent among these limitations is the seriousness with which the subject approaches the study. Although every effort is made to create a serious mood in the survey administration room, there are inevitable disruptions. Further, participation is mandatory; although on its face this helps avoid problems of response bias, non-involved subjects may not be as veracious in their responses as would be hoped. Finally, supervisors report

that there are literacy problems among a number of employees. Their random responses may contribute to some attenuation of variance.

One must be concerned as well about the quality of the measures used in the study. Most of the measures used here are predominantly derived from lab research and have not been validated in the the field setting. This is an almost inevitable problem when moving research from lab to field, and one must ultimately rely on the quality and generalizability of the research that engendered these measures.

An additional limitation of this study is the inability of the WABA analysis to confirm causality. Ideally, it would be interesting to examine these data and determine if the relationships among variables are not only significant, but if they have a specific causal order. Although there are techniques that may be applied to this problem, their examination and implementation is beyond the scope of the present study.

One final limitation of this study is that the subjects are almost entirely female (98%). Although there is no biological basis for questioning the generalizability of these results to a heterogeneous population, the fact

that men and women experience different socialization patterns may make the findings reported here somewhat specific to female working populations. A post hoc ANOVA indicates that there are no significant differences between the very few men in this sample and the women on any attitudinal measures, but this does not assure generalizability.

FUTURE DIRECTIONS

This model needs to be re-examined using performance data. Such a re-examination will permit the confirmation of the role of goal commitment as the intention to perform, as well as an examination of the role of trait expectancy, goal level, state expectancy and valence on performance. Given the success that the goal/ expectancy models have enjoyed in the lab (Earley and Lituchy, 1991), the continuing development of a field-sustainable model would contribute substantially both to our understanding of the motivation of real workers and to the practitioners' ability to manage. A workable goal/ expectancy model can be built on, providing the basis for a unified theory of motivation. From such a foundation, researchers can begin

to re-examine the role of incentives and compensation levels, of goals and managerial expectations, and the role that satisfaction with performance plays in employee motivation.

The results of this analysis also call for an extended examination of the relationship between individual cognitions and the formation of team influenced attitudes in real work environments. At a basic level, researchers need to focus on how the collectivization of individual cognitions takes place among teams of subjects in the field and how these processes influence team productivity and individual motivation.

It is also apparent from this research that, in spite of management's desire to create modular sewing structures and not "teams" per se, employee work groups have very clearly formed into cohesive teams. Given this, it would be useful to examine the causes and processes of team formation and to determine if the imposition of a team structure will necessarily create a "team." Further, it would be useful to determine if team-directed structure is enough to create a team environment, or if the process of team development can be enhanced through additional managerial intervention (e.g., team-building activity).

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Team Effectiveness Survey



Research Conducted by Virginia Tech

This survey has been designed to examine the factors that lead to team effectiveness. Please read all directions and consider your answers carefully. All individual answers will be kept completely confidential. Thank you for participating.

Confidential Virginia Tech Team-Sewing Survey

Directions: Please read the following items and think about how well they describe the way you feel about yourself. Please mark with an 'X' the extent to which you agree or disagree with the following statements

1. If I can't do a job the first time, I keep trying until I can.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
2. When I set important goals for myself, I rarely achieve them.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
3. I often give up on things before completing them.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
4. When I have something unpleasant to do, I stick to it until I finish it.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
5. When I decide to do something, I go right to work on it.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
6. When trying to learn something new, I soon give up if I am not initially successful.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
7. When unexpected problems occur, I don't handle them well.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
8. I avoid trying to learn new things when they look too difficult.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
9. Failure just makes me try harder.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
10. I feel insecure about my ability to do things.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
11. I give up easily.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
12. I do not feel capable of dealing with most problems that come up in life.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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The following are questions about how you feel about the speed at which you personally work. Please consider how satisfying sewing at the levels described below would be to you. REMEMBER: THIS SERIES OF QUESTIONS IS ABOUT YOUR PERSONAL SEWING SPEED, NOT YOUR TEAM'S PERFORMANCE

1. How satisfied would you be if you sewed at 100% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
2. How satisfied would you be if you sewed at 105% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
3. How satisfied would you be if you sewed at 110% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
4. How satisfied would you be if you sewed at 115% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
5. How satisfied would you be if you sewed at 120% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
6. How satisfied would you be if you sewed at 125% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
7. How satisfied would you be if you sewed at 130% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
8. How satisfied would you be if you sewed at 135% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
9. How satisfied would you be if you sewed at 140% speed for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------
10. How satisfied would you be if you sewed faster than 140% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

Trait Expectancy

Attractiveness of personal performance

State expectancy

Directions: Please indicate, with an 'X' whether you CAN or CANNOT personally sew at the average level specified for THE NEXT SIX MONTHS. Then write in the space to the right how certain you are of your answer, using 0 to 100 points, with 100 being the most certain.

	Can	Cannot	How Certain (0 - 100)
1. REGULARLY sew at 100%.	_____	_____	_____
2. REGULARLY sew at 105%.	_____	_____	_____
3. REGULARLY sew at 110%.	_____	_____	_____
4. REGULARLY sew at 115%.	_____	_____	_____
5. REGULARLY sew at 120%.	_____	_____	_____
6. REGULARLY sew at 125%.	_____	_____	_____
7. REGULARLY sew at 130%.	_____	_____	_____
8. REGULARLY sew at 135%.	_____	_____	_____
9. REGULARLY sew at 140%.	_____	_____	_____
10. REGULARLY sew OVER 140%.	_____	_____	_____

11. If you compare yourself to other sewing workers in the plant, how do you think that you will perform? (pick the one item that best describes you)

_____ Better than 8 out of 10 of the other workers.
 _____ Better than 7 out of 10 of the other workers.
 _____ Better than 5 out of 10 of the other workers.
 _____ Better than 3 out of 10 of the other workers.
 _____ 8 out of 10 of the other workers will perform better than me.

Goal Commitment

Directions: We want to find out how you feel about the production goals that you work toward. Please mark, with an 'X', the extent to which you agree or disagree with the following statements.

- I think that my team's production goal is a good one to shoot for.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
- It's hard for me to take my team's production goal seriously.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
- I am strongly committed to my team's production goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
- The team's production goal is unrealistic for me.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------
- I believe that the team's production goal may need to be changed.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------

6. I don't care if I personally perform well enough to help the team achieve its production goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------

7. It wouldn't take much to make me not care at all about my team's production goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
-------------------	----------	-------------------	----------------	-------	----------------

The following are statements about how you feel about money. Please indicate how you feel by putting marking the response that most closely matches your own.

1. The more money I earn, the better I feel about myself.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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2. I think people respect me more if I earn more than most other people.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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3. It seems that most of the money that I earn is spent on bills and necessities before I get it.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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4. How I feel about myself is greatly influenced by how much I earn.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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5. I like earning more money because it helps me gain respect from others.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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6. The pay I earn is absolutely essential for my household.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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7. When my earnings are low for the week I feel disappointed in myself.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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8. When I earn more my supervisor respects me more.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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9. I could save most of my paycheck if I felt like it.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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10. I would be much more worried about the future if I wasn't earning money now.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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11. For some reason I seem to get along better with friends when I have earned more that week.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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12. Much of what I earn is spent on activities with friends.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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13. The pay I earn makes me feel more secure about things.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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14. The more I earn the more fun I can have with my friends after work.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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15. I worry less about life when I am earning money.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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Directions: We want to find out how you feel about the attendance goals that you work toward. Please indicate the extent to which you agree or disagree with the following statements.

1. It wouldn't take much to make me abandon my team's attendance goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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2. I am strongly committed to achieving the attendance goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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3. I think that the attendance goal is a good one to try for.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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4. It's hard for me to take the attendance goal seriously.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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5. It's unrealistic for me to expect to meet the attendance goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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6. It is quite likely that the attendance goal may need to be revised.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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7. Quite frankly, I don't care if I achieve the attendance goal or not.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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The following are statements about how you feel about working on your team. Please mark with an 'X' the box that most closely matches your own feelings.

1. I am willing to put in a great deal of effort beyond that normally expected in order for the team to be successful.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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2. I talk up (brag about) this team to my friends as a great team to work on.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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3. I feel very little loyalty to this team.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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4. I would accept almost any type of job assignment in order to keep working with this team.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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5. I find that my values and the team's values are very similar.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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6. I am proud to tell others that I am part of this team.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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7. I could just as well be working for a different team as long as the work was similar.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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8. This team really inspires the very best in me in the way of job performance.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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9. It would take very little change in my present circumstances to cause me to leave this team.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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10. I am extremely glad that I chose this team to work with over others that I was considering working with when I joined.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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11. There's not too much to be gained by sticking with this team indefinitely.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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12. Often, I find it difficult to agree with this team's policies on important matters relating to its members.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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13. I really care about the fate of this team.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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14. Deciding to work on this team was a definite mistake on my part.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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15. For me this is the best of all possible teams with which to work.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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Directions: We want to find out how you feel about the quality goals that you work toward. Please indicate the extent to which you agree or disagree with the following statements.

1. It's hard for me to take the team's quality goal seriously.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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2. It's unlikely that I will do good enough quality work to help the team reach its quality goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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3. I am strongly committed to my team's quality goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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4. It is quite likely that the team's quality goal may need to be changed, depending on how things go.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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5. It wouldn't take much to make me abandon my team's quality goal.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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6. Quite frankly, I don't care if my own quality is good enough to help the team reach its quality goal or not.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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7. I think that my team's quality goal is a good one to try for.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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The following are questions about how you feel about the level of your team's performance. REMEMBER, THESE QUESTIONS ARE ABOUT YOUR TEAM'S PERFORMANCE. Think about how satisfying it is for you when your TEAM meets these performance levels, and then mark the box that matches your feelings.

1. How satisfied would you be if your team sewed 100% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
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2. How satisfied would you be if your team sewed 105% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

3. How satisfied would you be if your team sewed 110% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

4. How satisfied would you be if your team sewed 115% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

5. How satisfied would you be if your team sewed 120% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

6. How satisfied would you be if your team sewed 125% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

7. How satisfied would you be if your team sewed 130% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

8. How satisfied would you be if your team sewed 135% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

9. How satisfied would you be if your team sewed 140% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

10. How satisfied would you be if your team exceeded 140% for the week?

extremely dissatisfied	very dissatisfied	somewhat dissatisfied	moderately satisfied	very satisfied	extremely satisfied
------------------------	-------------------	-----------------------	----------------------	----------------	---------------------

attractiveness of team performance

People's abilities to communicate vary a lot. Sometimes a person is better able to communicate in one situation than in another. Please indicate how competent you believe you are to communicate in each of the situations described below. Indicate in the space provided at the left of each item your estimate of your competence, using numbers from 0 to 100 (100 being the highest performance).

How comfortable are you?
(0 - 100)

1. Present a talk to a group of strangers. _____
2. Talk with an acquaintance. _____
3. Talk in a large meeting of friends. _____
4. Talk in a small group of strangers. _____
5. Talk with a friend. _____
6. Talk in a large meeting of acquaintances. _____
7. Talk with a stranger. _____
8. Present a talk to a group of friends. _____
9. Talk in a small group of acquaintances. _____
10. Talk in a large meeting of strangers. _____
11. Talk in a small group of friends. _____
12. Present a talk to a group of acquaintances. _____

Think about your team and how you feel about it. Then, for each of the following statements put an "X" in the ONE statement that best describes how you feel.

1. How would you describe the production level of your team? CHECK ONE:
 - _____ (1) Its production is very high
 - _____ (2) It is fairly high
 - _____ (3) It is neither high nor low
 - _____ (4) It is fairly low
 - _____ (5) It is very low
2. How good would you say is the quality of the products produced by the people on your team? CHECK ONE:
 - _____ (1) Their products or services are of excellent quality
 - _____ (2) Good quality
 - _____ (3) Fair quality
 - _____ (4) Their quality is not too good
 - _____ (5) Their quality is poor

3. Do the people on your team seem to get maximum output from the resources (people, equipment, etc.) they have available? That is, how *efficiently* do your team-mates do their work? CHECK ONE:
 - _____ (1) They do not work efficiently at all
 - _____ (2) Not too efficient
 - _____ (3) Fairly efficient
 - _____ (4) They are very efficient
 - _____ (5) They are extremely efficient

4. How good a job is done by the people on your team in *anticipating* problems that may come up in the future and keep them from happening or from becoming problems? CHECK ONE:
 - _____ (1) They do an excellent job in anticipating problems
 - _____ (2) They do a very good job
 - _____ (3) A fair job
 - _____ (4) Not too good a job
 - _____ (5) They do a poor job in anticipating problems

5. From time to time new ways and new equipment are found with which to do the work. How good a job do the people on your team do at keeping up with the changes that could affect the way they do their work? CHECK ONE:
 - _____ (1) They do a poor job of keeping up to date
 - _____ (2) Not too good a job
 - _____ (3) A fair job
 - _____ (4) They do a good job
 - _____ (5) They do an excellent job of keeping up to date

6. When changes are made in the routines or equipment, how *quickly* do the people on your team accept and adjust to these changes? CHECK ONE:
 - _____ (1) Most adjust to changes immediately
 - _____ (2) They adjust very rapidly, but not immediately
 - _____ (3) Fairly rapidly
 - _____ (4) Rather slowly
 - _____ (5) Most people accept and adjust to change slowly

7. What proportion of the people on your team readily accept and adjust to these changes? CHECK ONE:
 - _____ (1) Considerably less than half of the people accept and adjust to these changes readily
 - _____ (2) Slightly less than half do
 - _____ (3) The majority do
 - _____ (4) Considerably more than half do
 - _____ (5) Practically everyone accepts and adjusts to these changes readily

8

9. When emergencies occur, they cause work overloads for many people. Some handle these emergencies better than others. How good a job do the people on your team do at handling these situations? CHECK ONE:

- (1) They do a poor job of handling emergency situations
- (2) They do not do very well
- (3) They do a fair job
- (4) They do a good job
- (5) They do an excellent job of handling these situation changes

9. Do you feel that you are really a part of your team?

- Really a part of my team.
- Included in most ways.
- Don't feel that I really belong.

10. If you had a chance to do the same kind of work for the same pay on another team, how would you feel about moving?

- Would want very much to move.
- Would rather move than stay.
- Would make no difference.
- Would rather stay where I am.
- Would want very much to stay.

11. Compared to other teams, how does yours get along together?

- Better than most.
- About the same as most.
- Not as well as most.

12. Compared to other teams, how do your teammates stick together?

- Better than most.
- About the same as most.
- Not as well as most.

13. Compared to other teams, how do your teammates help each other on the job?

- Better than most.
- About the same as most.
- Not as well as most.

Please consider each of the following statements and put an "X" in the in the space that best describes how much you agree or disagree with each statement.

1. The other team members consider what I have to say when we set our goals.

- | | | | | | |
|-------------------|----------|-------------------|----------------|-------|----------------|
| strongly disagree | disagree | slightly disagree | slightly agree | agree | strongly agree |
|-------------------|----------|-------------------|----------------|-------|----------------|

2. I am often not allowed to participate in my team's discussion about goals.

- | | | | | | |
|-------------------|----------|-------------------|----------------|-------|----------------|
| strongly disagree | disagree | slightly disagree | slightly agree | agree | strongly agree |
|-------------------|----------|-------------------|----------------|-------|----------------|

3. My team encourages me to participate in setting our goals.

- | | | | | | |
|-------------------|----------|-------------------|----------------|-------|----------------|
| strongly disagree | disagree | slightly disagree | slightly agree | agree | strongly agree |
|-------------------|----------|-------------------|----------------|-------|----------------|

4. My opinions about goal level are important to my teams decisions about what our goals will be.

- | | | | | | |
|-------------------|----------|-------------------|----------------|-------|----------------|
| strongly disagree | disagree | slightly disagree | slightly agree | agree | strongly agree |
|-------------------|----------|-------------------|----------------|-------|----------------|

5. My teammates seldom allow me much say in our goal-setting.

- | | | | | | |
|-------------------|----------|-------------------|----------------|-------|----------------|
| strongly disagree | disagree | slightly disagree | slightly agree | agree | strongly agree |
|-------------------|----------|-------------------|----------------|-------|----------------|

6. People on my team encourage me to participate in our discussions about our team's goals.

- | | | | | | |
|-------------------|----------|-------------------|----------------|-------|----------------|
| strongly disagree | disagree | slightly disagree | slightly agree | agree | strongly agree |
|-------------------|----------|-------------------|----------------|-------|----------------|

Please consider each of the following statements and whether it applies to you. Circle a T (for true) or F (for false) for each statement. There are no "right" or "wrong" answers. We just want to find out more about what people on teams are like.

1. I am quite independent of the people I know. _____ T F
2. I find that I can think better when I have the advice of others. _____ T F
3. I go out of my way to prevent anyone from getting the best of me. _____ T F
4. I seldom put out extra effort to make friends. _____ T F
5. I delight in feeling unattached. _____ T F
6. When I bump into a piece of furniture, I don't usually get angry. _____ T F
7. I don't really have fun at large parties. _____ T F
8. People should be more involved in their work. _____ T F
9. Family obligations make me feel important. _____ T F
10. I think that certain people deserve to be "put in their places". _____ T F
11. I would not be very good at a job which required me to meet people all day. _____ T F
12. I seldom set standards which are difficult for me to reach. _____ T F
13. People who try to regulate my conduct with rules are a bother. _____ T F
14. I seldom feel like hitting anyone. _____ T F
15. I enjoy difficult work. _____ T F
16. When I see someone I know from a distance, I don't go out of my way to say hello. _____ T F
17. I would feel lost and lonely roaming around the world alone. _____ T F
18. I have rarely done extra studying in connection with my work. _____ T F
19. When I am irritated, I let it be known. _____ T F
20. Sometimes I have to make a real effort to be sociable. _____ T F

21. I could live alone and enjoy it. _____ T F
22. I will not be satisfied until I am the best in my field of work. _____ T F
23. I rarely get angry either at myself or at other people. ... T F
24. I don't spend much of my time talking with people I see every day. _____ T F
25. I respect rules because they guide me. _____ T F
26. I try to work just hard enough to get by. _____ T F
27. Stupidity makes me angry. _____ T F
28. Often I would rather be alone than with a group of friends. _____ T F
29. I would not mind living in a very lonely place. _____ T F
30. I would never start a fight with anybody. _____ T F
31. I would work just as hard whether or not I had to earn a living. _____ T F
32. I try to be in the company of friends as much as possible. _____ T F
33. Adventures where I am on my own are a little frightening to me. _____ T F
34. I do not let my work get in the way of what I really want to do. _____ T F
35. I have been known to fly into a rage if things didn't go as I had planned. _____ T F
36. I trust my friends completely. _____ T F
37. I would like to be alone and my own boss. _____ T F
38. If someone does something I don't like, I seldom say anything. _____ T F
39. My goal is to do at least a little bit more than anyone else has done before. _____ T F
40. My friendships are many. _____ T F
41. Sometimes I have to make a real effort to be sociable. . T F
42. In my work I seldom do more than is necessary. _____ T F
43. I often make people angry by teasing them. _____ T F
44. I spend a lot of time visiting friends. _____ T F
45. I often set goals that are very difficult to reach. _____ T F
46. I would like to have a job in which I didn't have to answer to anyone. _____ T F
47. I avoid criticizing others under any circumstances. _____ T F
48. People seldom think of me as a hard worker. _____ T F
49. I truly enjoy myself at social functions. _____ T F
50. I usually try to share my problems with someone who can help me. _____ T F
51. As a child I worried a long time for some of the things

- I earned. _____ T F
52. Sometimes I feel like smashing things _____ T F
53. People consider me to be quite friendly. _____ T F
54. I am quite independent of the opinions of others. _____ T F
55. It doesn't really matter to me whether or not I become the best in my field. _____ T F
56. If someone hurts me I just try to forget about it. _____ T F
57. I go out of my way to meet people. _____ T F
58. I don't want to be away from my family too much. _____ T F
59. I don't mind working while other people are having fun. T F
60. I get a kick out of seeing someone I dislike appear foolish in front of others. _____ T F
61. I am not really very certain what I want to do or how to go about doing it. _____ T F
62. I choose hobbies that I can share with other people. _____ T F
63. My greatest desire is to be independent and free. _____ T F
64. I rarely swear. _____ T F

PART 7: Demographics

1. Are you? _____ male _____ female
2. Would you describe yourself as a:
 - _____ Asian American
 - _____ Black or African American
 - _____ Native American or American Indian
 - _____ Hispanic or Latin American
 - _____ White or European American
 - _____ Other
3. How many years have you worked in team sewing? _____ Years
4. How many years you have worked for this company? _____ Years
5. In what year were you born? 19 _____

Please check the highest level of formal education you have completed.

- _____ less than high school degree
 - _____ high school
 - _____ some college
 - _____ College degree
6. Are you married? _____ Yes _____ No
 7. How many dependants do you have? _____
 8. On average, what is your pay per hour? \$ _____

Thank you very much for your responses. This is confidential information and will not be shared with anyone.

Directions: Please indicate, with an 'X' how well the quality of your work compares to others'.

1. If you compare yourself to other sewing workers in the plant, how do you think that you rate in terms of the QUALITY of your work? (pick the one item that best describes you)

- _____ Better than 9 out of 10 of the other workers.
- _____ Better than 7 out of 10 of the other workers.
- _____ Better than 5 out of 10 of the other workers.
- _____ Better than 3 out of 10 of the other workers.
- _____ 9 out of 10 of the other workers will perform better than me.

Directions: These questions are about your use of CROSS-TRAINING. Please mark, with an 'X', the extent to which you agree or disagree with the following statements.

1. I feel very comfortable working on other sewing jobs on my team.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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2. If there is a bottleneck, I am willing to work at another sewing job to help out.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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3. I prefer to work only at my specialty.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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4. I don't feel comfortable using my cross-training

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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5. I regularly use my cross-training to increase team production.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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Directions: We want to find out about your personal goals. Think about the rate at which you would like to work and how much you would like to produce. Then, indicate the extent to which you agree or disagree with the following statements.

1. My own production goals are much higher than my team's goals.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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2. My team's production goals are higher than I would like them to be.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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3. My goals and my team's production goals are very different.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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4. My teammates set production goals that are too low for me personally.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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5. I would like it if my team had different production goals

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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6. I think that my team should have lower production goals.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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7. Left to myself, I would set lower production goals than my team does.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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Directions: The following questions are about what money means to you. Please consider each question seriously before you respond. Then, indicate the extent to which you agree or disagree with the following statement.

1. Pay is the most important thing I consider when I think about choosing a job.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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2. Having a good supervisor is as important as how much money I make.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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3. Given a choice between a pay increase or an easier job, I would choose a pay increase.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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4. I would gladly work more hours to make more money.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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5. Having a work schedule that meets my needs is as important as the money I make.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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6. The most important thing about my job is the money I make.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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7. Given a choice between a lower-paying job that I liked and a higher-paying job that I did not, I would choose the higher paying job.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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8. Having good people to work with is as important as how much money I make.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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Supplemental

VITA

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- Townsend, A.M., Scott K.D. and Markham, S.E. (1988). An exploratory study of pay differences between cultures. Edited by D.F. Ray, Southern Management Association Proceedings: 64-66.
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ences in compensation practices. Journal of International Business Studies, 4: 667-668.

Jones, E. , Perkinovsky, J. and Townsend, A. (1990) Motivation of group versus individual behavior: an educational futures and options trading club application. Meeting abstract American Journal of Agricultural Economics 72: 1383.

Townsend, A.M. and Partridge, D.P. (1990) The effect of multi-tier wage structures on equity beliefs. Paper presented at the 1990 Industrial Relations Research Association.

Scott, K.D. and Townsend, A.M. (1992) A test of Eden's goal/expectancy model among sales representatives. Edited by J. L. Wall and L. R. Jauch. Academy of Management Best Papers Proceedings: 242-246.

Townsend, A.M. and Scott, K. D. (1993) Determinants of pay-at-risk preferences of salespeople. Edited by K. A. Vaverek and M. A. Williams. Proceedings of the Southwestern Academy of Management: 101-104.

Townsend, A. M. (1993) Administrative employees in the arts: Are they really different? Presented at 1993 Academy of Management Meeting.

Partridge, D.M. and Townsend, A.M. (1993) The effect of perceived pay equity on dual commitment in a multi-tier wage structure. To be presented at the 14th Annual Southern Industrial Relations and Human Resources Conference, Myrtle Beach, S.C., October, 1993.

Partridge, D.M. and Townsend, A. M. (1993) The influence of referents on attitudes in a multi-tier wage structure. Accepted for presentation at 1994 Industrial Relations Research Association.

RESEARCH IN PROGRESS

Partridge, D.M. and Townsend, A.M. Multi-tier wage structures: A reconsideration of their effects on

worker attitudes. Revision requested, Industrial and Labor Relations Review.

Scott, K.D. and Townsend, A.M. A test of Eden's trait/expectancy and goal difficulty model among sales representatives. Under review at the Journal of Sales Management and Personal Selling

Townsend, A. M. A cross-national examination of the labor/government substitution effect. Data analysis stage.

ACADEMIC POSITIONS

1986-Present Virginia Polytechnic Institute and State University, R. B. Pamplin College of Business. Research Assistant and Instructor

Research Assistant (10 semesters, full-time)

Responsible for assisting in administration of large, industry sponsored research program. Work includes sponsor contact, project design, instrument design and distribution, data entry and analysis, and co-authorship of articles from the work. Duties also include responsibility for sponsor development, planning conferences, and program marketing.

Instructor (four semesters, full-time)

Responsibilities include all associated with teaching an undergraduate class, including lesson plan development, lecture, testing and evaluation. Classes taught are Human Resource Management, Administrative Theory and Practice, and Labor Relations.

NON-ACADEMIC POSITIONS

- 1984-1985 Television Digest, Washington, D.C. Senior Supervising Editor. Responsible for the work of eight editors and the text portion of of the company's annual reference publications.
- 1983-1984 Fairfax County School System, Fairfax County, Virginia. Substitute Teacher.
- 1982-1983 Office of Congressman Frank Wolf, Washington D.C. Constituent Services Assistant. Internship included responsibilities for case load of constituent problems. Duties entailed interaction with numerous public and private entities in behalf of constituents.
- 1979-1981 U.S. Environmental Protection Agency, Washington, D.C. Edited rule promulgations to be published in the Federal Register while working in the Office of the Director. Also worked in Office of Enforcement to create training and development program for new investigative unit.

RESEARCH GRANTS AND FUNDING

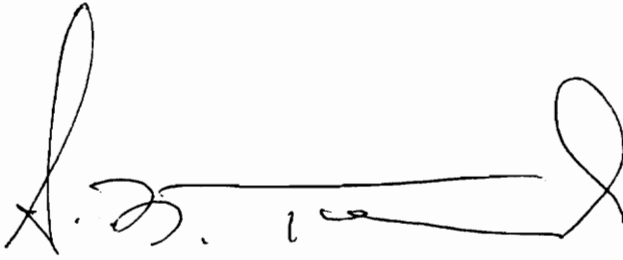
- 1988-1989 \$250.00 Graduate Student Assembly Award for research into two-tier wage contracts.
- \$500.00 Barringer Center grant for research into two-tier wage contracts.
- \$2000.00 support from union for two-tier wage contract research.
- 1992-1993 \$60,000.00 in support from manufacturing firm for dissertation research.

SERVICE TO UNIVERSITY

1988-1990 University Council
1988-1989 University Provost Selection Committee
1990-1992 President of the Graduate Student Assembly

CONSULTING

1989 Roanoke Symphony Orchestra (Non-Profit Management)

A handwritten signature in black ink, appearing to be 'A. B. L.', written in a cursive style. The signature is positioned below the consulting entry.