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The relationship between intrinsic motivation, organizational commitment and organizational citizenship behavior: A longitudinal study

Malinak, Joyce A., Ph.D.

The Ohio State University, 1993
THE RELATIONSHIP BETWEEN INTRINSIC MOTIVATION, ORGANIZATIONAL COMMITMENT AND ORGANIZATIONAL CITIZENSHIP BEHAVIOR: A LONGITUDINAL STUDY

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

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*****

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1993

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Labor and Human Resources Graduate Program
The quality of the mother's life - however embattled and unprotected - is her primary bequest to her daughter, because a woman who can believe in herself, who is a fighter, and who continues to struggle to create livable space around her is demonstrating to her daughter that these possibilities exist.


To the heart of my life Jennifer Malinak Kalamas,

A good deal of my time and attention in the first years of your life were sacrificed to this project. This work is dedicated to all the possibilities in both of our lives.
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CHAPTER 1
INTRODUCTION

Statement of Problem

In classical management theory (Taylor 1911, Weber 1947) scientific and logical systems sought to minimize the variance in worker behavior. The human element was seen as the primary hindrance to optimal productivity which was to be controlled through job and organization design. Management was seen essentially as a means of coercing performance through control and economic incentives. Subsequently, in reaction to classical management thought, "human relations" management theorists promoted an approach of meeting the social psychological needs of the worker in order to increase productivity (Roethlisberger & Dickson 1939, Gardner 1945). Two of the more prevalent ideas attributed to the human relations school were: (1) worker participation, as a way to make workers "happy", is a panacea for all workplace problems and (2) satisfaction is the direct cause of productivity (Organ & Bateman 1991). In spite of a lack of evidence that these ideas were specifically propounded in what is generally considered
to be the human relations literature, there has been continuing discussion regarding both of these ideas (Organ 1977).

Interest in and experimentation with worker participation has continued and has expanded greatly in the past twenty years. The need to secure employees' spontaneous cooperation and participation is being viewed as more critical to organization success than ever before (Peters & Waterman 1982, Moss Kanter 1989). A 1987 United States General Accounting Office survey of Fortune 1000 companies found sixty percent of those companies claiming to utilize some type of employee participation process. Those same companies expected that, in the immediate future, such efforts would expand both in kind and in number of employees included (General Accounting Office 1987). Research has repeatedly found a strong relationship between participative processes and job satisfaction but the link between those processes and productivity has received only weak support (Miller & Monge 1986, Cotton et.al. 1988).

While the discussion regarding the impact of employee participation on organization effectiveness continues (Miller & Monge 1986, Cotton et.al. 1988, Organ 1990, Walton 1991), so too does the debate regarding the relationship between job satisfaction and performance. Whether performing a traditional literature review (Brayfield &
Crockett 1955, Vroom 1964) or using the newer meta-analysis technique (Petty, McGee & Cavender 1985, Iaffaldano & Muchinsky 1984), empirical support for any appreciable relationship between performance and satisfaction has not been found. It has been suggested that the broadening of what is considered under the category of performance in those studies could significantly change the conclusions of the research purporting to test the relationship (Organ 1988b, Organ 1977). Because participation has been found to be related to job satisfaction a refinement of the research regarding the satisfaction-performance relationship could impact the conclusions regarding the relationship of participation and performance.

Behaviors that have not traditionally been included when measuring performance are those spontaneous, nonprescribed behaviors that facilitate organization functioning. Bateman and Organ (1983) have designated such cooperative extrarole employee behaviors as "citizenship" behaviors. Organ (1988a) defines Organizational Citizenship Behavior (OCB) as: "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization". Examples of such behaviors are: speaking highly of the organization, suggesting improvements and spontaneously helping new or
inexperienced employees. Research regarding worker participation that has used a narrower definition of performance as the dependent variable could, therefore, be impacted by such a reformulation of that definition.

Organizations need employees to respond spontaneously to the unanticipated (go beyond specified roles) in order for organizations to be effective (Katz 1964). Because OCB has a negligible ability component and requires no additional organization-provided resources (Organ 1983, Organ 1988a), employee OCB is a meaningful source of organization slack available to increase overall performance. Given that employees display varying amounts of OCB (Bateman & Organ 1983, Organ 1988), and that effective management of OCB is important in contemporary organizations (Katz 1964), exploration of the antecedents of OCB should be of considerable interest to both academics and practitioners.

Research Objective

It has been suggested that the motivational basis for extrarole cooperative behaviors is likely to be more than simple compliance (O’Reilly & Chatman). Additionally, an increase in such behaviors has been identified as a necessary component of the employee involvement strategy for organizational success (Moss Kanter 1989, Walton 1991). The trend toward employee involvement and participation has been
linked with the move to a "high commitment" concept of managing that assumes managerial coercion and control will be replaced by individual employee commitment to the organization (Walton 1991). The opportunity for workers to participate is meant to make the job more challenging and thereby lead to greater feelings of personal control and competence (Fisher 1978). This in turn leads to worker self motivation -- employees are self rather than externally motivated to perform. If workers are motivated from within themselves to perform then they can go beyond behaviors that are required to behaviors that are needed.

The foregoing implies that the proponents of employee participation would expect OCB to be related to both worker self motivation and organizational commitment. If the interest in participative strategies is driven by a desire for spontaneously cooperative extrarole behavior (OCB), committed employees (organizational commitment) and self-motivated employees (intrinsic motivation) then it makes sense to examine whether there is more than an anecdotal relationship among these three factors. An empirical investigation of these relationships should help refine some of the thinking in current participation folklore and add to the body of knowledge academics have recently begun with regard to OCB.
Research Design and Methodology

The evidence that "one shot" laboratory-induced helpfulness (no matter how precisely measured) seems to be significantly different than such behavior exhibited in a work organization setting (Organ 1988b) was central to the research design decision. For this reason the field study approach, which maximizes realism at the expense of precision of measurement and generalizability, is appropriate. Because there has been only one longitudinal study of OCB (Bateman & Organ 1983) a field study conducted over a period of time is particularly relevant.

An employee survey and a companion survey for each employee's supervisor were chosen to be administered twice, approximately four and one-half months apart. The study sample consisted of a convenience sample of fulltime administrative and clerical employees from six units in a Fortune 500 Midwest (U.S.) insurance company. The companion supervisor survey was the OCB scale (Smith et.al. 1983) that asked supervisors to rate how characteristic a (citizenship) behavior is of a particular employee. The employee survey included an appropriately worded self-report version of the OCB scale (Smith et.al. 1983), the Internal Work Motivation Scale (Hackman & Oldham 1975) and the Organizational Commitment Questionnaire (Mowday et.al.
The items applicable to the variables of interest were randomly ordered and imbedded in a larger employee questionnaire that was designed to assess the success of a trial quality service circle program. The items that comprised each of the four scales are presented in Appendices A through D.

OCB has been most consistently represented by at least the two factors of (1) OCB directed at specific individuals (OCBI) and (2) OCB directed at the organization in general (OCBO) (Organ 1988a). Although OCB seems to be dependably (if not completely, in every setting) represented by these two factors, factor analyses of the OCB scale for both supervisory and self-report data at both time one and time two was used to establish the factor structure for this sample. After assessing the reliability of the three scales and any OCB factor subscales, the hypothesized relationships between OCB, intrinsic motivation and organizational commitment were examined at both the global and factor level.

Multiple regression using longitudinal change models, simple correlations and multiple regression using static models at time one and time two are employed to analyze the data. Longitudinal models make it possible to evaluate the variance that intrinsic motivation and organizational behavior contribute to OCB while controlling for the
relationship of OCB to itself over time. Intercorrelations between the variables of interest allow (1) comparison of relationships between sets of variables and (2) the elucidation of data deficiencies that can affect analysis. The static models provide for analysis of four groups of data (supervisory and self for both time one and time two) for each proposed relationship and comparison of the results from those different groups.

This study contributes to the current understanding of OCB by:

(1) exploring the factorial structure of OCB and the relationships of those factors to intrinsic motivation and organizational commitment;

(2) exploring longitudinally the proposed relationships between OCB, OCB factors, intrinsic motivation and organizational commitment; and

(3) exploring the OCB and OCB factor relationships by analyzing OCB and OCB factor data from two different sources (supervisor and self-report).

Overview of Presentation

The chapters following detail the theoretical justification for the study, the research design, methodology, data analysis results and discussion of the results. Every chapter is organized with major headings and subheadings throughout. Chapter II provides the theoretical background for the study, presentation of specific
hypotheses and justification of those hypotheses through the relevant literature.

Chapter III describes the study research design and its advantages and disadvantages. The methodology utilized in the research (sample selection, data collection procedures, variable operationalizations) and data analysis are also explained. Chapter IV summarizes the study results in tabular and expository formats.

Chapter V is a discussion of the results of the data analyses in relation to the literature concerning OCB, intrinsic motivation and organizational commitment. It integrates the results and reconsiders theory and methodology in light of the results. Chapter VI contains the researcher’s conclusions and recommendations regarding theory refinement and future research.
CHAPTER II
LITERATURE REVIEW

Theoretical Foundations of the Study

Evolution of Management Theory

Securing the necessary work behaviors from employees has been one of the major themes in management. The works of the "father of scientific management", Fredrick Taylor (1911), defined a management approach for controlling workers in industrial organizations in order to extract required performances to maximize productivity. This control strategy relied on the division of work into narrow, management-prescribed jobs that could be closely monitored for compliance. A compatible management theory was developed by Weber (1947) (but not published until much later) at approximately the same time that Taylor (1911) was developing his ideas. Weber introduced the bureaucratic management strategy that relied on strict job specialization and detailed organization rules as his answer to ultimate worker productivity. Taken together, specialization and rules were to provide absolute predictability and standardization (Weber 1947). For both Taylor (1911) and Weber (1947), the human element was seen as the main
hindrance to productivity in their newly designed jobs and organizations. Their systems sought to minimize the variance in worker behavior. Management was seen essentially as a means of coercing, through control and economic incentives, performance that would not otherwise be forthcoming.

Findings from what began as a classical scientific management experiment at the Hawthorne Plant of the Western Electric Company (around 1930) caused some management theorists (Roethlisberger & Dickson 1939) to question the underlying tenets of scientific and bureaucratic management. Roethlisberger & Dickson (1939) concluded that productivity could be increased by meeting the social psychological needs of the worker. In the human relations view, workers would get their needs satisfied by the informal (social) organization in spite of, and often contrary to, the controls of the formal organization. Unfortunately, the ideas the human relations approach fostered tended to oversimplify rather than balance management theory. Two of the more prevalent ideas (which took on a life of their own) were that (1) satisfaction is the direct cause of productivity and (2) worker participation, as a way to make workers "happy", is a panacea for all workplace problems (Organ & Bateman 1991).
Barnard (1938) integrated some of the foregoing ideas into a more modern theory of management. He saw the productivity of work organizations depending on the balance between organizational control and individual contribution. This coordinated effort would require the acceptance and cooperation of the workers. Katz (1964) added to this line of thinking when he suggested that organizations need three types of behavior in order to function effectively. At a minimum, organizations need people to (1) join and stay in an organization and (2) to meet specific organizational standards of performance. The third category of behaviors Katz (1964) proposed as necessary were cooperative and innovative behaviors that go beyond formally prescribed roles. He saw these as indispensable for a successfully functioning organization.

Katz and Kahn (1966) suggested "things would soon grind to a halt" if employees would follow their job descriptions and organization rules exactly. An excellent example of the results of staying strictly within the bounds of role prescriptions is the havoc created when a union uses the strategy of "work to the rule". In this job action, rather than strike or slowdown, workers willfully suspend cooperative behaviors not officially assigned by management and rather behave precisely as dictated by management rules and procedures. In the film Collision Course (1988),
unionized workers at Eastern Airlines describe the prolonging of tasks by working according to the rules. In one case, a mechanic described using this tactic to prolong a task to three days that would normally take an experienced mechanic two hours.

Most recently, the work of management theorists such as Walton (1985, 1991) has been concerned with transforming the workplace from one of management monitoring and control to one where cultivating employee commitment produces the behaviors necessary to organization success. Brought together these viewpoints can be used to describe a continuum of workers' "willingness to cooperate" (Barnard 1938; Katz & Kahn 1966) and raise the related question regarding the basis of that willingness.

The degree to which all organizations must rely on worker cooperation for effectiveness is still a matter of dispute (Organ 1990, Walton 1991). The need to secure employees' spontaneous cooperation in the prevailing environment, where organizational hierarchies are flattening and the "span of control" for supervision is continually being stretched, is being viewed as more critical than ever before (Walton 1991, Peters & Waterman 1982). At a time when jobs are changing too quickly to be continually formally redefined and flexibility is seen as the prime competitive advantage (Moss Kanter 1989), it seems more
necessary than ever before for organization members to go spontaneously beyond that role prescribed by their job descriptions and exhibit behaviors that facilitate organization functioning.

Employee Participation

At the same time concern with organizational flexibility continues to escalate, there has been an increasing interest regarding employee involvement and worker participation. Instigated by the success of foreign competitors, who have more participatory industrial relations and human resource systems (Levine & Tyson, 1989), business managers have increased their experimentation with worker participation. In a 1987 U.S. General Accounting Office (GAO) survey of Fortune 1000 corporations, better than sixty (60) percent of the 476 respondents had adopted some type of innovation aimed at increasing participation. Projecting forward two years, about thirty (30) percent planned to increase the workers covered by those innovations and approximately fifty (50) percent planned to add new programs.

Walton (1991) links these trends with the move to the "commitment-based approach" to the workforce. The mechanism through which participative approaches are meant to tap the creativity and discretionary effort of employees is through worker self motivation. As Katz (1964) describes it,
organizations need employees to respond spontaneously to the unanticipated (go beyond specified roles) in order for organizations to be effective. If workers are motivated from within themselves to perform then they will go beyond behaviors that can be required to behaviors that are needed.

Because most of the current discussion regarding participation comes out of concerns with organizational competitiveness, the primary focus of involvement has been on increasing performance and productivity. Unfortunately, the link between participative approaches (of whatever form) and performance has received only weak support (Miller & Monge 1986, Cotton et al. 1988). It has been suggested that the broadening of what is considered under the category of performance could significantly change the conclusions of research using performance as the dependent variable (Organ 1988b, Organ 1977).

Organizational Citizenship Behavior

Behaviors that have not traditionally been included when measuring performance are those spontaneous, nonprescribed behaviors that facilitate organization functioning. Bateman and Organ (1983) have designated such cooperative extrarole employee behaviors as "citizenship" behaviors. Organ (1988a) defines Organizational Citizenship Behavior (OCB) as: "individual behavior that is discretionary, not directly or explicitly recognized by the
formal reward system, and that in the aggregate promotes the effective functioning of the organization. Adding OCB to the mix of performances measured, when considering "PERFORMANCE", enlarges the arena away from simply the sum of individual productivity measures to the inclusion of behaviors that benefit the organization as a whole but may not be individually recognized for their contribution.

OCB is a positive organization "commodity"-- a behavior that can add directly to the monetary value of an employee's performance on the job (Orr, Sackett & Mercer 1989). It has been found that a vast majority of managers and union leaders believe that loyalty, cooperation and attendance should be included in measures of productivity (Katzell & Yankelovich 1975). There is even some evidence that these behaviors more accurately predict supervisors' performance evaluation ratings than objective productivity measures (MacKenzie, Podsakoff & Fetter, 1991).

As opposed to a broader category of prosocial (helping) behaviors in the workplace, OCB denotes behaviors that cannot be enforced on the basis of formal role obligations nor readily elicited through guarantee of a direct reward (Organ 1988a). Examples of such behaviors are: speaking highly of the organization, suggesting improvements, being punctual beyond the norm and helping new or inexperienced employees. For example, Puffer (1987) identified five
prosocial behaviors that clearly benefitted the overall retail organization (eg. assisting other salespeople, keeping displays tidy, investigating postsale problems) but not the commission salespeople exhibiting those behaviors. Puffer found that prosocial behavior had no significant relationship to individual sales figures -- a traditional performance criterion. This is not surprising since time not spent on "making the sale" is not necessarily time spent performing extrarole prosocial behaviors or visa versa.

Because an increase in such cooperative extrarole behaviors has been identified as a necessary component of the high commitment strategy for organizational success (Walton 1991, Moss Kanter 1989), OCB is an important variable to understand. Academic interest and research regarding OCB has consequently increased dramatically in recent years (since 1988 -- eg. Organ 1988a, Organ 1988b, Organ & Konovsky 1989, Organ 1990, Farh et.al. 1990, Moorman 1991, Pearce & Gregersen 1991, Williams & Anderson 1991,). Employee OCB is a meaningful source to access when seeking to increase overall organization performance given that OCB has only a small ability component and requires no additional organization resources to accomplish (Organ 1983, Organ 1988a). OCB further increases the resources of the organization by lessening the need for costly control devices, if such devices are even available. Since OCB is
discretionary, an increase in OCB may indicate movement to a high commitment (Walton 1990, 1991) workplace.

Organizational Commitment

As suggested by the label "high commitment" (Walton 1990, 1991), the move to this concept of managing the workplace (not using a control strategy) assumes that managerial control will be replaced by individual employee commitment to the organization. This implies that proponents of participation would expect an increase in OCB to be related to increased organizational commitment. As O'Reilly and Chatman (1986) state, "The motivational basis for (such) extrarole behavior is likely to require more than simple compliance."

One way to frame a discussion about compliance or "something more" is to use Etzioni's (1961) typology of commitment. It is also a useful way of viewing the evolution of work organization from Taylor's control model (1911) to Walton's (1985) "high commitment" model. Etzioni's framework typologizes involvement that members can have with their organizations. The first type is alienative involvement that relies on the threat of harm to assure continuance in the organization (prisons being the prime example). The second type of involvement is calculative. This type relies upon the promise of material benefits, based on a rational exchange between the organization and
the member, to assure continued membership and performance. The third type is moral organizational involvement. In this form, members function as a result of identification with authority and the internalization of organization goals and values.

At one end of the spectrum, alienative involvement involves physical harm, or the threat of such, to keep members "in line". In Etzioni's scheme such coercion results in the most basic compliance by organization members. Calculative or instrumental involvement relies primarily on rewards, or the promise of rewards, rather than threats. The rational exchange of material benefits from the organization for specified actions by individuals provides the basis of continued membership. This utilitarian relationship is similar to the situation, envisioned by Taylor (1911), where workers' labor could only be obtained by direct financial compensation of specific management-designated tasks.

At the other end of the spectrum, Etzioni's third type of organizational involvement is moral. In this form, members internalize organization goals and values. They accrue symbolic rewards that do not represent a strict quid pro quo for what they contribute to the organization. Because the member identifies with organizational authority a strict accounting of rewards and contributions is
unnecessary. Etzioni viewed this bond as true commitment to the organization. It would seem that the need for unrewarded behaviors in the workplace is related to symbolic control via moral commitment to achieve more than an instrumental relationship.

Intrinsic Motivation

Another major assumption of the participation movement is that participation "enriches" the job by increasing the scope of the job (Herzberg et al. 1959, Herzberg 1968, Hackman & Lawler 1971, Hackman & Oldham 1976). Increasing the scope of the job refers to adding tasks that require different skills (horizontal loading) and/or adding tasks that require more complex skills (vertical loading). The desirability of increasing job scope lies in the expectation that increased job scope leads to intrinsic motivation (Hackman & Lawler 1971). Intrinsic motivation has been described as the degree to which an employee is self-motivated to perform effectively (Hackman & Oldham 1975). Behaviors that are not intrinsically motivated have as their goal the "avoidance of punishment or the pursuit of a valued outcome" (Deci & Ryan 1987) -- they are extrinsically motivated. An individual may be intrinsically motivated to perform in-role activity or OCB but, by definition, motivation to undertake activities in order to receive extrinsic rewards cannot result in OCB. One can envision an
environment where going beyond (supposedly) prescribed roles is routinely expected. At that point, however, the performance is extrinsically motivated (and arguably in-role) and is not OCB.

"Behaviors that are intrinsically motivated are those done for their own sake and not because they lead to extrinsic rewards" (Deci 1975). Intrinsic rewards are self administered and as such do not rely on agents outside the individual. Extrinsic rewards are those that are provided by forces outside the individual. The extrinsic-intrinsic distinction is difficult to maintain, however, and appears not to be dichotomous (Fisher 1978). Rather, intrinsic and extrinsic motivation would seem to be on a continuum. deCharms (1968) aptly describes the situation in the following manner:

He may merely be striving for his own satisfaction and incidentally have riches and fame showered on him (as many of our cultural heroes are supposed to have done) or he may start out to make a million dollars and find that the game is more satisfying than the prize. More realistically, he may want fame and riches and at the same time want to attain them in a way that is personally satisfying.

There has been a substantial amount of discussion regarding the effect of external rewards on level of intrinsic motivation. (Does the presentation of external rewards increase or decrease intrinsic motivation?) A variety of
logic has been used to argue both a resultant decrease and increase in intrinsic motivation. The empirical evidence in favor of either position is mixed (Fisher 1978). Deci (1975) defines intrinsically-motivated behaviors as behaviors that a person engages in to feel competent and self-determining. Results regarding the effect of external rewards seem to depend largely on the way researchers conceptualized competence and self determination and whether they actually measured those variables -- or simply assumed their presence (Fisher 1978, Arnold 1985). The important point, which is not in dispute, is that intrinsic motivation is related to feelings of competence and personal control and rewards that enhance those feelings will increase intrinsic motivation.

The opportunity for workers to participate is meant to make the job more challenging and thereby lead to greater feelings of personal control and competence (Fisher 1978). Consequently, employees are self (rather than externally) motivated to perform. It can be inferred, therefore, that the popular belief would be that intrinsic motivation has a positive relationship to OCB.

Statement of the Research Question

If the massive interest in participation, as reflected in the United States General Accounting Office survey (1987)
and numerous popular and business publications, is motivated by a desire for spontaneously cooperative extrarole behavior (OCB), committed employees (organizational commitment) and self-motivated employees (intrinsic motivation) then it makes sense to examine whether there is more than an anecdotal relationship among these three factors. Is an employee's level of intrinsic motivation related to the amount of OCB displayed and how is that relationship affected by the employee's level of organizational commitment?

The proposal that intrinsic motivation and organizational commitment are related to OCB is in line with the current thinking regarding OCB. Previous research studies have explored the relationship between OCB and perceived task characteristics -- characteristics intended to increase the intrinsic motivation potential of a job (Farh et al. 1991, Pearce & Gregersen 1991, Organ 1990). In addition, the relationship between organizational commitment and OCB has been examined directly (Williams & Anderson 1991, O'Reilly & Chatman, 1986). OCB in organizations has most often been described in terms of two primary dimensions of OCB: altruism and conscientiousness. Altruism concerns OCB directed at individuals within the organization and will be referred to here as OCBI (Williams 1988). Conscientiousness designates OCB directed at the
organization as a whole and, in this study, will be referred to as OCBO (Williams 1988).

Given that employees display varying amounts of OCB (Bateman & Organ 1983, Organ 1988), and that effective management of OCB is important in contemporary organizations, exploration of the antecedents of OCB should be of considerable interest to both academics and practitioners. An empirical investigation of these relationships should help refine some of the thinking in current participation folklore and add to the body of knowledge academics have recently begun with regard to OCB. The study will contribute to the current understanding of OCB by exploring longitudinally a number of hypotheses concerning OCB, organizational commitment and intrinsic motivation. An additional benefit of the study proposed here is that distinct relationships for OCBO and OCBI may be discerned.

Previous OCB Research

Relationship to Job Satisfaction

Job satisfaction and facets of job satisfaction have been the most often considered correlates of OCB, OCBI and OCBO. Those studies have repeatedly shown job satisfaction to be correlated with measures of OCB (Bateman & Organ 1983, Smith et al. 1983, Motowidlo 1984, Puffer 1987). This focus
is an evolution of the early work concerning OCB (Organ 1977, Smith et al. 1983) that sought to reexamine the often debated relationship between satisfaction and performance. It was proposed that OCB is a more likely type of performance to be affected by job satisfaction. Because OCB is more under the control of workers than other forms of performance, whose variance may be constrained by technology, job design, ability, work flow, breakdowns in equipment, etc., OCB would be more likely to reflect the effects of job satisfaction. Two rationales for the impact of satisfaction were advanced (Bateman & Organ, 1983). (1) Satisfaction as felt equity produces a need to reciprocate in the form of (individually controllable) OCB. (2) Satisfaction as positive affect or mood state reduces the psychological distance between people and results in more prosocial (OCB) acts.

In the only longitudinal study of OCB available, Bateman and Organ (1983) studied the relationship between job satisfaction and OCB. The study did not attempt to differentiate the possibly different relationships for OCBI and OCBO that will be addressed by this research. Bateman and Organ were not able to discern a causal direction and could not reject the hypothesis that the relationship between OCB and satisfaction was based on a common cause of variation.
Although the studies regarding the relationship between OCB and satisfaction have not been able to conclude that the relationship is actually the critical one, the studies are instructive in two ways. First, the equivocal results have pointed the search for theoretically logical antecedents of OCB toward known correlates of job satisfaction such as task characteristics (Farh et. al. 1990), supportive supervision (Bateman & Organ 1983), organizational justice (Moorman 1991), leader fairness (Farh et. al. 1990) and task interdependence (Pearce & Gregersen 1991). As Farh et. al. (1990) state, "... continued theoretical development of OCB should examine whether measures of satisfaction act as 'surrogates' for what are actually stronger influences due to other variables."

Second, those earlier satisfaction-OCB studies have led to research regarding cognitive appraisals that may intervene between present mood state and the behaviors that are eventually exhibited. Much of the initial theorizing regarding OCB (Organ 1983, Smith et. al. 1983) came out of social psychology research regarding altruistic or charitable acts. Quite simply, the collective results of those altruism studies were that subjects in a positive mood state (happy) were more likely to behave altruistically than those in a negative mood state (Smith et. al 1983). Contrary to the findings regarding such charitable acts, OCB studies
have not found subject mood (affective) state to add much explanatory power beyond the variables being studied, let alone be the primary antecedent (Organ & Konovsky 1989, Organ 1990).

Organ (1988b) advances the idea that one reason for job satisfaction not relating more strongly to OCB is that measures of satisfaction are quite different from happiness measures. Job satisfaction is not purely affect. Attitudes have affective (emotional state) and cognitive (controlled assessment of external circumstances) components where cognition and affect are semiindependent and the types of behavior cognitively or affectively driven are different (Miller and Tesser 1986). Job satisfaction loads primarily on a cognition factor and happiness loads primarily on an affect factor. Furthermore, the part of satisfaction that is affect is not necessarily affect as a direct result of the cognition part of satisfaction (Organ & Konovsky 1989). For instance, Smith et.al. (1983) found a significant relationship between job satisfaction and OCBI but none with OCBO (actions toward an entity being presumably less affective.)

The discussion regarding the affective versus cognitive basis of satisfaction (Organ 1988b, Williams 1988, Organ & Konovsky 1989) leads to an important question regarding the nature of OCB. Is OCB primarily affectively or cognitively
driven? If OCB is driven by affect it would be a function primarily of individual traits controllable during the selection process (Organ & Konovsky 1989). Whereas, if OCB is driven by cognition, it could primarily be a function of employees' appraisals of the workplace that would need to be addressed on an ongoing basis.

Following this logic, an explanation advanced for OCB study findings seemingly at odds with those from social psychology research is that behavior in chance encounters (typical of the social psychology studies) are more likely to access temporary mood and behavior that occurs in ongoing relationships in an organizational setting are more likely to have a more controlled (cognitive) character (Organ 1988a).

Relationship to Organizational Justice

Although organizational fairness has proved to be one of the correlates of satisfaction theoretically and empirically important to understanding OCB (Moorman 1991, Farh et.al 1990. Organ & Konovsky 1989), fairness is related to extrinsic motivation. Fairness perceptions are based on judgements regarding externally administered treatments and as such are inadequate to understand that part of OCB that is intrinsically motivated. Organ (1988b) implicitly recognizes this inadequacy in discussing fairness as a basis for OCB. He states that to redress unfairness an employee
might wish to withhold performance but that "such a tactic probably would be painful for professionals and skilled artisans whose egos and self esteem are so closely bound to pride in performance" (emphasis added). Organ (1990) goes on to recognize explicitly a role for intrinsic motivation when he speculates that intrinsic outcomes from the work itself may make an employee less likely to dwell on unfair treatment that would otherwise result in less OCB.

Investigating how evaluations of fairness and intrinsic motivation connect in relation to OCB would seem to be important. It has long been recognized that employees enter into an unspoken arrangement with the organization such that an individual's commitment attitude is exchanged for desirable outcomes from the organization (Mowday et al. 1982). More recently, that arrangement has been explicitly examined in terms of organizational justice. Folger and Konovsky (1989) reported that procedural justice (how outcomes are arrived at) better predicted organizational commitment than did distributive justice (how outcomes are allotted). Procedural justice appears to be related to more general evaluations whereas distributive justice appears to be related to evaluations of specific outcomes (Price & Mueller 1986). Since specific outcomes are outside the definition of OCB, OCB should be more related to procedural
justice. In fact, Moorman (1991) found a positive relationship between procedural fairness and OCB exhibited.

**Relationship to Organizational Commitment**

Organizational commitment is the relative strength of an individual's identification with and involvement in an organization (Mowday et al. 1982). Because of the relationship of fairness with OCB and the relationship of fairness with organizational commitment, it appears that organizational commitment and OCB should be related. What few findings exist have not entirely supported that logical supposition. O'Reilly and Chatman (1986) used a refinement of Etzioni's moral commitment type to test the relationship between commitment and OCB. Rather than identification and internalization being part of the same concept, they separate them as distinct types. Identification signifies a feeling of belonging to the organization, whether or not there is agreement with the goals and values of the organization. Internalization would then signify a higher level of commitment whereby the individual not only identifies but personally adopts the organization's goals and values. They found compliance -- instrumental calculative involvement for specific **extrinsic rewards** -- was not related to extrarole performance for a group of employees. Identification related significantly to
extrarole performance for both employees and students. Internalization was related only for the student sample.

Schaubroeck and Ganster (1991) found organization commitment to be related directly to extrarole, prosocial behavior and satisfaction not related when accounting for commitment. The subjects were from volunteer organizations and both commitment and satisfaction scores were unusually high, in comparison to work organization norms. It is therefore questionable whether their findings would generalize to a workplace population.

In the one other study to examine the relationship between commitment and OCB, Williams and Anderson (1991) followed the lead of O’Reilly and Chatman (1986) and attempted to differentiate between compliance, identification and internalization. Their factor analysis could not support a separation of the three and they were therefore combined to form a unidimensional commitment factor. The commitment factor did not explain additional variance beyond that explained by job satisfaction and did not correlate with either of their OCB factors. Williams and Anderson (1991) conclude that in spite of their results organizational commitment deserves more examination in relation to OCB because of the strong theoretical support for such a relationship.
Organizational commitment has been found to be unstable for new employees (Porter et al. 1974, Werbel & Gould 1984) and job satisfaction is stable early in employment (Porter et al. 1974). Although satisfaction and commitment have been found to be highly correlated, research suggests that job satisfaction is antecedent to organizational commitment (Williams & Hazer 1986). This being the case, it may be that the difference between altruistic behavior in chance encounters versus helping behavior that occurs in an organizational setting (Organ 1988a) can be explained better in terms of organizational commitment rather than job satisfaction. Perhaps regularly exhibiting OCB is more affected by a slowly developed attitude (commitment).

One indication that this may be true is that perceptions of organizational justice are more predictive of commitment than of job satisfaction (Price & Mueller 1986). In addition, it is proposed here that organizational commitment may be the interaction whereby intrinsic motivation raises the threshold for perceptions of unfairness (Organ 1990) that would otherwise result in less OCB.

Relationship to Job Characteristics

There are three studies that rely, either explicitly or implicitly, on the Job Characteristics Model (Hackman & Oldham 1976) to explain their research. The job
characteristics model (Hackman & Oldham 1975) purports that five perceived task characteristics — autonomy, skill variety, task identity, task significance and direct feedback — leading to critical psychological states (of which felt responsibility is only one) result in a number of personal and work outcomes including high internal work motivation. In the model, the extent to which task characteristics lead to the critical psychological states and the extent to which the critical states lead to high internal work motivation are both moderated by growth need strength — the degree to which an individual employee desires psychological growth. Intrinsic motivation, or internal work motivation (the terms are used interchangeably), is described by Hackman & Oldham (1975) as the degree to which an employee is self-motivated to perform effectively.

Farh et.al. (1990) were examining fairness, work satisfaction and task characteristics as antecedents of OCB when they found a relationship between task characteristics and both forms of OCB. Pearce and Gregersen (1991) went one step further and found a relationship between interdependence (a structural characteristic of jobs) and "prosocial extrarole behavior" only through the psychological state of felt responsibility. Then Williams and Anderson (1991) provided evidence that cognitions of
intrinsic job rewards are related to OCBI and cognitions of extrinsic rewards are related to OCBO.

A direct relationship between job scope, which was operationalized as perceived task characteristics (Hackman & Oldham, 1975), and OCBO was found by Farh et al. (1990). Using structural equation modeling they found a direct path such that perceived task characteristics had a direct effect on OCBO and OCBI independent of work satisfaction or fairness. Job satisfaction was unrelated to either form of OCB when controlling for task characteristics. They reasoned that task characteristics may engage an employee such that the threshold for perception of unfairness is raised -- less time is spent "calculating" fairness. More meaningful for the current study, drawing on the Hackman and Oldham job characteristics model (1975), they opined that enhanced task characteristics contribute to a sense of responsibility and personal efficacy that would cause an individual to voluntarily go beyond formal role prescriptions.

In the second study, Pearce and Gregersen (1991) hypothesized that the structural job characteristic of task interdependence would be associated with extracircle behaviors only through "felt responsibility". Also referring to the Hackman & Oldham model of job redesign (1976), they essentially refined and tested the supposition of Farh
et.al. (1991) that a sense of responsibility would contribute to voluntary, extrarole behavior. Pearce and Gregersen argued that it is the intervening psychological state of felt responsibility, rather than structural variables (such as task characteristics or task interdependence), that is critical to performance of extrarole behaviors. Unfortunately, utilizing an ad hoc measure of extrarole behavior resulted in a one factor representation. (This may have occurred because only two items of the ten item scale referred to extrarole behavior aimed at people and one of those referred to other workers in the aggregate.) They found that felt responsibility did indeed have a direct significant but weak effect on extrarole behavior. This result, providing evidence for a mediating variable between structural job characteristics and OCB, is also in line with Smith et.al. (1983) who found no direct or indirect (through job satisfaction) effects of task interdependence on either form of OCB.

In the third study that is particularly instructive, Williams and Anderson (1991) found that cognitions regarding the job were significantly related to both forms of OCB. The job cognitions scale broke down into two factors -- job cognitions intrinsic and job cognitions extrinsic. Although both cognition factors were related to both OCBO and OCBI, extrinsic cognitions were more strongly related to OCBO and
intrinsic cognitions were more strongly related to OCBI. Both cognitions remained significant even after controlling for the effect of in-role behaviors. Williams (1988) in a connected study found job cognitions intrinsic related to both OCBO and OCBI and job cognitions extrinsic related to neither. The authors conclude, "findings for the job cognitions intrinsic predictor suggest that beliefs about job characteristics may be linked to OCB performance." Although they note the possibility that job characteristics may be related to OCB, Williams and Anderson (1991) inadvertently supply data to move the focus from task characteristics to one possible outcome of those task characteristics -- intrinsic motivation.

Intrinsic motivation needs to be included along with fairness/extrinsic motivation to help explain OCB. Additionally, it is argued here that intrinsic motivation is a more appropriate variable than either task characteristics or felt responsibility to relate to OCB. Farh et.al. (1990) actually state, "there is, however, a case to be made for why these task characteristics - to the extent that they arouse intrinsic motivation - (emphasis added) should directly influence OCB." Intrinsic motivation (from whatever combination of sources) actually corresponds more closely to the proposed theoretical reasons for exhibiting discretionary behavior. The Williams and Anderson (1991)
study goes the furthest in the progression implied by the three studies reviewed above. Although these researchers have implicitly based their explanations on the characteristics of intrinsic motivation they have not actually measured what their reasoning has implied.

General Propositions and Specific Hypotheses

The study proposed here continues the current stream of OCB research. First, following on Farh et.al. (1990), it is presumed that job satisfaction shares variance with one or more "true" antecedents of OCB. Second, given the known correlates of job satisfaction already examined to uncover the cause of that shared variance, intrinsic motivation is proposed as a good candidate for a significant part of that variance. Third, the role of intrinsic motivation implied in previous research will be refined, expressly stated and directly tested. Fourth, the role of organizational commitment in explaining the relationship of fairness perceptions with intrinsic motivation and OCB will be proposed and examined.

General Propositions

There are two general propositions guiding the current research.

(1) The degree to which an employee is intrinsically motivated will be related to the
amount of OCB or OCBO and OCBI in which that employee engages.

(2) An employee’s level of organizational commitment will differentially affect the relationship between intrinsic motivation and OCB, OCBO and OCBI.

The sections following will propose hypotheses to test the relationships of OCB, OCBO, and OCBI to intrinsic motivation and organizational commitment within the parameters of the two general propositions. Relevant research and theory justifying those hypotheses will be presented prior to each hypothesis. The hypotheses can be summarized by the following conceptual model.

![Figure 1](Conceptual Model of the Relationship of Intrinsic Motivation and Organizational Commitment to OCBO and OCBI)

The hypotheses will be presented in three stages. First, the relationships of global OCB to intrinsic motivation and organizational commitment will be proposed. Although a two-factor representation of OCB is expected to be most appropriate it is still important to report findings
for the global dimension when expecting the factors to be related to other variables (Dalton & Cosier 1988). The second stage will involve hypotheses regarding how OCBO relates to intrinsic motivation and organizational commitment. The third stage will present hypotheses involving the relationships of intrinsic motivation and organizational commitment with OCBI.

Based on the results of Organ and Konovsky (1989), no hypotheses regarding possible demographic factors are proposed. Using a hierarchical regression analysis, they found that demographic indicators produced no statistically significant multiple correlations for either OCBO or OCBI. The predicted relationships are not expected to be confounded by employees' general or organization demographics. (Age, job tenure, organization tenure, education and sex data are available.)

Specific Hypotheses

The three studies dealing with job characteristics are directly relevant to considering the relationship between intrinsic motivation and OCB. Taken together, these three studies move the locus of interest from the relationship of OCB with variables assumed to result in intrinsic motivation, to the relationship of OCB with intrinsic motivation itself.
Intrinsic motivation has been described as feelings experienced from doing well or poorly on a job (Hackman & Oldham 1975). Behaviors that are intrinsically motivated are those done for their own sake and not because they lead to extrinsic rewards (Deci 1975). The intrinsic rewards are, therefore, self administered and the employee is self-motivated to perform effectively. An individual can be intrinsically motivated to perform in-role activity or OCB but, by definition, motivation to undertake activities in order to receive extrinsic rewards cannot result in OCB.

According to Deci (1975):

Intrinsically motivated behaviors are behaviors which a person engages in to feel competent and self-determining. ...., there are two general classes of behavior which are intrinsically motivated. The first involves seeking out situations which provide the person with challenge. This challenge will be one with which he has the ability to deal. .... if there is too much challenge he will seek a situation which provides a challenge which he can handle. The second class of behaviors which are intrinsically motivated are ones which involve conquering challenges which he encounters or creates (emphasis added).

Farh et.al.(1990) speculate that "feelings of personal efficacy" from enhanced task characteristics result in OCB. Intrinsic motivation, however, emanates from more than the characteristics of the job. Intrinsic motivation may also be affected by ability, availability of resources, non-work stress and other things which impact an individual’s
expectation of succeeding (Vroom 1964). The notion of personal efficacy, to which Farh et.al. (1990) refer, is similar to the aspect of intrinsic motivation related to feeling "competent and self-determining". A reading of the above definition indicates that enhanced task characteristics may actually impede intrinsic motivation. People must perceive themselves to be the locus of causality of their own behavior in order to consider themselves to be intrinsically motivated (deCharms 1968). Task enhancement may lead to a feeling of being overwhelmed if the person feels that the enriched job cannot be successfully performed.

Hackman and Oldham (1975) seem to provide for this circumstance in their model. The model proposes that employees' perceptions of the extent of task variety, task identity, task significance, autonomy and direct feedback provided by their jobs leads to some level of motivating potential. But the level of motivating potential is moderated by the individual's "growth need strength" -- the degree to which an individual employee desires that scope. Therefore, to the extent enhanced task characteristics are threatening, they may lead to lower intrinsic motivation to perform in-role or extrarole activities. It has been found that type of reward system (pay) is unrelated to level of intrinsic motivation when controlling for personal control
and competence (Fisher 1978, Arnold 1985, Rummel & Feinberg 1988). Feelings of personal control over performance and actual competent performance (Fisher 1978, Arnold 1985) relate directly to intrinsic motivation whether measured through self reports or observed behavior. Additional support for this view comes from Motowidlo et al. (1986) who found that stress inhibits performances, including OCB.

Based on the foregoing, intervening psychological states (such as felt responsibility) seem not to be critical OCB antecedents either. According to Hackman and Oldham (1975), the effect of those states on personal and work outcomes is also moderated by growth need strength. In addition, as discussed above, the effect of those states will likely be impacted by felt competence resulting from enhanced task characteristics. This scenario provides a plausible explanation for the weak relationship found between felt responsibility and OCB (Pearce & Gregersen 1991).

Findings that in-role behaviors are not significantly related to OCB (Puffer 1987) suggest some possibilities regarding the role of intrinsic motivation. It would seem that level of OCB exhibited could correspond to in-role performance or, equally as credible, OCB could be used to compensate for in-role performance. That is, although an individual may not feel competent to perform in-role
behaviors (due to enrichment) if intrinsically motivated, the person may seek to establish competence by increasing OCB -- which has a negligible ability component (Organ 1988a). Also, one could reduce OCB without reducing in-role behavior to reduce effort without being sanctioned. OCB is a controllable means for an individual to adjust safely the terms of the working contract.

**Hypothesis 1: There is a positive relationship between intrinsic motivation and OCB.**

The commitment addressed here is congruent with Etzioni's moral commitment type where members internalize the organization's goals and values. Commitment is defined here as the relative strength of an individual's identification with and involvement in an organization and is characterized by:

1) a desire to maintain membership in the organization;
2) belief in and acceptance of the values and goals of the organization; and
3) a willingness to exert considerable effort on behalf of the organization (Mowday et.al. 1982).

Organizational commitment has shown only a weak relationship with performance (Mowday et.al. 1982). Performances into which ability and technology factors do
not intervene seem more likely to have a detectable relationship with organizational commitment. OCB fits those criteria. This supposition is supported by Eisenberger et al. (1990) who found that number and quality of innovative suggestions offered (a form of OCB) resulted in part from an affective attachment to the organization. On the other hand, the lack of such commitment would tend to inhibit engaging in OCB -- there is no theoretical reason for a purely calculative involvement to result in OCB.

Farh et al. (1990) suggest that "willingness to exert considerable effort" may represent an attitudinal disposition that might partially underlie tendencies toward OCB. O'Reilly and Chatman (1986) used a refinement of Etzioni's moral commitment type (and of the above definition) to test the relationship between commitment and OCB. They found compliance (instrumental involvement) was not related to extrarole performance for a group of employees and identification related significantly to extrarole performance for both employees and students. Schaubroeck and Ganster (1991) found organization commitment to be related directly to extrarole, prosocial behavior. It is questionable, however, that their findings generalize because the subjects were from volunteer organizations and commitment scores were unusually high in comparison to work organization norms.
In the one other study to examine the relationship between commitment and OCB, Williams and Anderson (1991) found a unidimensional commitment factor did not correlate with either of their OCB factors. Williams and Anderson (1991) conclude that in spite of their results organizational commitment deserves more examination in relation to OCB because of the strong theoretical support for such a relationship.

An indication that commitment may deserve more attention is that perceptions of organizational justice are more predictive of commitment than of job satisfaction (Price & Mueller 1986). In addition, Folger and Konovsky (1989) found that procedural justice better predicts organizational commitment than does distributive justice. Procedural justice seems to be related to more general evaluations of how the organization operates (in regard to its employees) and distributive justice appears to be related to evaluations of specific outcomes (Price & Mueller 1986). Expectations of specific outcomes are outside the definition of OCB. Therefore, as anticipated, OCB is related to procedural justice (Moorman 1991) indicating that organizational commitment should be related to OCB.

**Hypothesis 2: There is a positive relationship between organizational commitment and OCB.**
As Williams and Anderson (1991) state, there is more than ample theoretical reason for organizational commitment and OCB to be related. The research to date, however, provides only weak or indirect support for that proposition. As previously stated, organizational commitment is the relative strength of an individual's identification with and involvement in an organization. Mowday et al. (1982) state that organizationally committed individuals are willing to give "something more" of themselves in order to contribute toward the organization's success. One interpretation of this statement would be that commitment induces individuals to perform more than they would normally be motivated to perform. This extra effort would be going beyond "normal" intrinsic and/or extrinsic motivation.

It has been suggested that commitment acts as a stabilizing force that acts to maintain behavioral direction when fairness expectations are not met (Scholl 1981). In this construction it stands to reason that commitment would serve to continue performance in spite of fluctuating intrinsic motivation or to reinforce intrinsic motivation so as to facilitate more OCB. The positive relationship between organizational commitment and fairness perceptions (Folger & Konovsky 1989) coupled with the significant relationship between procedural fairness and OCBO (Moorman 1991) endorses the above line of reasoning. Given the lack
of support for a direct organizational commitment-OCB relationship, and the above reasoning, it seems most likely that organizational commitment serves as a moderator of the intrinsic motivation-OCB relationship. A moderator variable is a variable that interacts with another variable such that the predictability of the second variable is enhanced. "Taken alone the moderator variable usually shows no consequential relationship with the other variable" (emphasis added) (Cohen & Cohen 1983). It is reasonable to propose that organizational commitment may actually be the mechanism whereby perceptions of unfairness impact the relationship of intrinsic motivation and OCB.

Hypothesis 3: There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCB.

Findings that in-role performance is not significantly related to OCB (Puffer 1987) suggest that the level of OCB exhibited could correspond to in-role performance or, equally as credible, OCB could be used to compensate for in-role performance. Although an individual may not feel competent performing in-role behaviors, if intrinsically motivated, an employee may seek to establish competence by increasing (low ability required) OCB. It seems particularly likely that compensating for lack of in-role
performance would take the form of OCBO. Since OCBO represents hypervigilant attendance, punctuality and other conscientious actions (such as speaking well of the organization), it has even less of an ability component than OCBI that involves helping others with their work. Furthermore, one could establish at least a facade of competence by exhibiting exemplary conscientiousness.

Much of the OCBO construct consists of spending maximum amounts of time working without further external compensation. As such it represents the essence of intrinsic motivation. Conversely, if intrinsic motivation decreases, one could exhibit adequate attendance and punctuality without being sanctioned. Because overall effort is reduced but in-role behavior is not, OCBO represents a controllable means to adjust safely the terms of the working contract.

Some have suggested that involvement in interesting work may raise the threshold for recognizing organizational fairness (Farh et.al. 1990, Organ 1990). It may also be that intrinsic rewards compensate for unfair or unavailable extrinsic rewards (Deci 1972). If intrinsic rewards decrease perceptions of unfairness, through whatever mechanism, then the positive relationship of fairness and OCBO (Organ & Konovsky 1989, Moorman 1991) indicates a positive relationship between intrinsic motivation and OCBO.
Hypothesis 4: There is a positive relationship between intrinsic motivation and OCBO.

It has been proposed that identification with the organization's goals and values, as in organizational commitment, would tend to cause individuals to view the organization's success as their own (Eisenberger et.al. 1990). As such, it could tend to motivate actions aimed at that joint success. Because of the similarity between the behavioral implications of organizational commitment and prosocial behavior toward the organization the commitment attitude is a promising candidate for a predictor of prosocial behavior toward the organization (Brief & Motowidlo 1986).

O'Reilly and Chatman (1986) found that identification related significantly to extrarole performance for both employees and students and internalization was related only for the student sample. Although there is some question regarding the generalizability of the student sample, it is important to note that after the factor analysis their OCB measure included only OCBO-type items. This result is further supported by Eisenberger et.al. (1990) who found that number and quality of innovative suggestions offered (a form of OCBO) resulted in part from an affective attachment to the organization. Schaubroeck and Ganster (1991) found organization commitment to be directly related to extrarole,
prosocial behavior that was operationalized as participation in a nonrequired phoneathon -- a type of OCBO.

Williams and Anderson (1991) found that a commitment factor did not correlate with either of their OCB factors. But they concluded that, in spite of their results, commitment deserves more examination in relation to OCB because of the strong theoretical support for such a relationship.

Hypothesis 5: There is a positive relationship between organizational commitment and OCBO.

It appears that organizational commitment induces individuals to perform more than they would normally be motivated to perform in order to contribute toward the organization’s success (Mowday et.al. 1982). This identification with the organization’s success implies that behaviors that have the organization as their target would be the vehicle for that extra performance. Furthermore, it has been proposed that commitment acts as a force that acts to maintain behavioral direction when fairness expectations are not met (Scholl 1981). In this view commitment would serve to stabilize performance (OCBO) in spite of fluctuating intrinsic motivation.

Perceptions of procedural justice are predictive of commitment (Folger and Konovsky 1989) and a positive
relationship has been found between procedural fairness and OCBO exhibited (Moorman 1991). It is reasonable to propose, therefore, that organizational commitment may be the interaction whereby perceptions of unfairness impact intrinsic motivation and consequently the level of OCBO exhibited. In spite of the strong theoretical rationale for organizational commitment and OCBO being related, what few findings exist have not provided strong support for that supposition.

The O'Reilly and Chatman (1986) data produced mixed results for the employee sample with identification being related to extrarole performance and internalization not being related. It is important to remember that only OCBO-type items remained in their instrument after factor analysis. Although both identification and internalization were related to OCBO-type items for the student sample, the items used to measure OCB are only marginally related to OCB measures used in work organizations. The applicability of those results is therefore questionable. Like O'Reilly and Chatman (1986), the subjects of the Schaubroeck and Ganster (1991) study were students in volunteer organizations. So while organizational commitment was found to be related directly to the extrarole prosocial behavior of participation in a nonrequired phoneathon, it is doubtful that their findings generalize to a workplace population.
In the one other study to examine the relationship between commitment and OCB, Williams and Anderson (1991) found that commitment did not correlate with either of their OCB factors.

Given the lack of strong empirical support for a direct organizational commitment-OCBO relationship, and the more than adequate theoretical justification for organizational commitment and OCBO being related, it seems probable that organizational commitment serves as a moderator of the intrinsic motivation-OCBO relationship.

**Hypothesis 6:** There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCBO.

It has been said that the significance of OCB is that it cannot be accounted for by the motives that sustain in-role performance (Organ and Konovsky 1989). It has been hypothesized above that OCBO could be used to compensate for in-role performance. Choosing to establish in-role competence by exhibiting exemplary conscientiousness seems more likely than helping specific individuals to establish competence. If the employee projects the feeling of incompetence, others in the work environment may not even accept the helping behaviors the person proffers. Although there is not a good reason to predict that an intrinsically-
motivated individual would increase OCBI to compensate for in-role performance, there are other reasons to propose that OCBI and intrinsic motivation are positively related.

The previously mentioned social psychology studies regarding altruism manipulated subjects success on ego involving tasks to create positive mood state that in turn increased altruistic actions. Although those studies are not entirely applicable to the organizational setting, they are suggestive in this discussion. Success on ego-involving tasks seems similar to the concept of seeking competence through behavior that has no external reward and general altruistic actions are similar to the helping behavior characteristic of OCBI. Importantly, those experiments did not actually measure mood state but assumed that the illusion of success naturally produced a positive mood state (Rosenhan et. al 1974). It is possible that demonstrating competence in itself produced the altruistic actions. In either case, those studies imply that intrinsic motivation should be related to OCBI.

This idea is further supported by the studies that found that a reliable aftereffect of stress is a disinclination to help or even be concerned about others (Organ 1988a). The mastery aspect of intrinsic motivation would then seem to speak to the ability to be concerned about others that is prerequisite to altruistic action.
This thinking is in line with the original rationale for OCBI being affect driven -- positive affect decreases the psychological distance between individuals and makes helping behavior more likely (Bateman & Organ 1983). The positive association between cognitions regarding the intrinsic properties of the job and OCBI (Williams and Anderson 1990) suggests that perhaps those who spontaneously help others are also good at finding rewards in the job itself.

Additional evidence of the relationship between intrinsic motivation and OCBI comes from Puffer (1987). She found personal security to be related to extrarole prosocial behaviors. According to self-awareness theory (Duval & Wicklund, 1972), insecurity about one’s personal situation impedes one’s ability to focus on and react to external situations. Because intrinsic motivation implies self administered rewards-- rewards not dependent on others -- it could be inferred that those who are intrinsically motivated may also be more secure and therefore open to opportunities to help others (OCBI). On the other hand, it would also seem plausible that an individual who engages in OCBI activities because of a predisposition to behave altruistically would, as a result of so doing, experience a feeling of competence from being able to help others in the workplace. That feeling could drive an interest in other
aspects of the job not mediated by external agents, i.e. the person would become more intrinsically motivated.

**Hypothesis 7: There is a positive relationship between intrinsic motivation and OCBI.**

Because of the similarity between the behavioral implications of organizational commitment and prosocial behavior toward the organization, "the commitment attitude is also a good candidate for a predictor of prosocial behavior toward the organization, but not of prosocial behavior toward individuals." (Brief & Motowidlo 1986). The exclusive focus of organizational commitment is on the goals and values of the organization and the desire to continue as a member of the organization. As previously stated, because perceptions of organizational procedural justice are predictive of commitment (Folger and Konovsky 1989), OCB is a likely candidate to be related to organizational commitment.

Although Moorman (1991) found a positive relationship between procedural fairness and OCBO, he did not find a significant relationship between procedural fairness and OCBI. It can then be inferred that organizational commitment should be related to OCBO but not to OCBI. Accordingly, there is no compelling theoretical or empirical reason for expecting organizational commitment and the
personal immediate interactions characterizing OCBI to be related.

**Hypothesis 8: There is no relationship between OCBI and organizational commitment.**

Because there are strong theoretical reasons for organizational commitment and OCBO to be related, and empirical evidence of the relationship is weak or indirect, it has been proposed above that intrinsic motivation and organizational commitment interact in relation to OCBO. It makes sense that commitment interacts with intrinsic motivation to either inhibit or enhance performance of OCBO. The consistent factorial distinctiveness of OCBO and OCBI (Smith et al. 1983, Farh et al. 1990, Williams & Anderson 1991, MacKenzie et al. 1991) indicates that the rationale for proposing an interaction effect in regard to OCBO does not automatically apply to OCBI.

The most probable mechanism by which organizational commitment could influence the relationship between intrinsic motivation and OCBI suggests mixed outcomes. If organizational commitment fluctuates and the individual is blocked from adjusting OCBO (is already doing the most or least feasible) then adjusting OCBI could be an alternative for channeling intrinsic motivation. For example, a highly intrinsically motivated employee with decreasing commitment
might choose to decrease OCBO and as a result channel intrinsic motivation into performing more OCBI. Although theoretically appealing, the implied inverse relationship between OCBO and OCBI is not, thus far, supported empirically by any OCB study.

The personal immediate interactions characterizing OCBI are possible but not likely candidates to register the effect of organizational commitment interacting with intrinsic motivation. Organ (1990) states: "The unmistakable implication of what we are saying is that facets of organization governance susceptible to fairness judgements probably act more generally to reduce or constrain spontaneous OCB rather than to facilitate it (emphasis added)." It has been proposed here that fairness evaluations are linked to OCB through their relationship to organizational commitment that in turn moderates the association between intrinsic motivation and OCBO. Using the foregoing reasoning, the individual who cannot reduce OCBO any further may reduce OCBI instead. If as Organ (1990) suggests, "meanspirited egoistic individuals are not likely to show a transformation of character regardless of a fair system," then for a naturally altruistic individual reducing OCBI may not be an option either.
It seems quite possible that the individual may not adjust OCBI performance, at all, but rather channel motivation to in-role activities that could result in increased compensation (to rectify the unfairness). As outlined above, any moderating effect of organizational commitment would seem to be at least once removed from the relationship of intrinsic motivation and OCBI and, as such, is indeterminate at best.

Hypothesis 9: There is no interaction between intrinsic motivation and organizational commitment in their relationship with OCBI.

"If it is reasonable to distinguish between prosocial acts toward individuals and toward the organization as a whole, it is expected that some of these variables predict one form of prosocial behavior better than the other." (Brief & Motowidlo 1986). Researchers have endeavored to discover those differences (Williams & Anderson, 1991; Organ & Konovsky, 1989) and it has been proposed here that the relationship between OCBO and intrinsic motivation is changed by level of organizational commitment.

In spite of a correlation on the order of .55 between OCBO and OCBI (Organ 1988, Fehr et.al. 1990, Williams & Anderson 1991), the strength of the relationship between OCBO and intrinsic motivation versus OCBI and intrinsic
motivation is not expected to be similar. This expectation is based upon: (1) the consistent factorial distinctiveness of OCBO and OCBI (Smith et.al. 1983, Farh et.al. 1990, Williams & Anderson 1991, MacKenzie et.al. 1991); (2) the different relationships, and different strength relationships found for OCBO and OCBI (Williams 1988, Farh et.al. 1990, Moorman 1991, Williams & Anderson 1991); and (3) the reasoning supporting the proposal that the relationship between OCBI and intrinsic motivation is not moderated by organizational commitment.

| Hypothesis 10: There is a difference in the magnitude of the relationship of intrinsic motivation to OCBO and the relationship of intrinsic motivation to OCBI. |

The study proposed here continues the current stream of OCB research that began by examining the relationship between OCB and job satisfaction. Given the known correlates of job satisfaction already examined, and the role of intrinsic motivation implied in that research, intrinsic motivation is proposed as an appropriate variable to be directly tested. Different relationships for OCBO and OCBI, including how organizational commitment enters into those relationships, are examined. In summary, this study focuses on the ten hypotheses in Table 1 to test the conceptual model introduced earlier in this chapter.
TABLE 1
STATEMENT OF HYPOTHESES

Hypothesis 1: There is a positive relationship between intrinsic motivation and OCB.
Hypothesis 2: There is a positive relationship between organizational commitment and OCB.
Hypothesis 3: There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCB.
Hypothesis 4: There is a positive relationship between intrinsic motivation and OCBO.
Hypothesis 5: There is a positive relationship between organizational commitment and OCBO.
Hypothesis 6: There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCBO.
Hypothesis 7: There is a positive relationship between intrinsic motivation and OCBI.
Hypothesis 8: There is no relationship between organizational commitment and OCBI.
Hypothesis 9: There is no interaction between intrinsic motivation and organizational commitment in their relationship with OCBI.
Hypothesis 10: There is a difference in relative strength between the relationship of intrinsic motivation with OCBO and the relationship of intrinsic motivation with OCBI.
CHAPTER III
RESEARCH METHODOLOGY

The research proposed here is a longitudinal study of the effect of two proposed antecedents of Organizational Citizenship Behavior (OCB). This study will help define the relationships among intrinsic motivation, organizational commitment and OCB. More specifically, it will ascertain whether the influence of intrinsic motivation on OCB is affected by an employee's organizational commitment. The purpose of this chapter is to describe in detail the research design and methodology used to test the hypotheses enumerated in Chapter II.

Current understanding of OCB is hampered because research on the topic:

(1) tends toward ad hoc measures of OCB (eg. Motowidlo 1984, Puffer 1987, O'Reilly & Chatman 1986, Eisenberger et.al. 1990);

(2) is inclined to include substantially different operationalization of OCB;

(3) is characterized by cross-sectional data (Bateman & Organ 1983, being the notable exception); and

(4) uses unrepresentative samples -- O'Reilly and Chatman 1986, students; Farh et.al. 1990, Taiwanese government workers; Schaubroeck and Ganster 1991, student volunteers.

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This study addresses those deficiencies in the following ways.

(1) Measures of the variables of interest will be the most commonly used instruments available. This includes the measure most frequently used and scrutinized (Dalton & Cosier 1988) for measuring OCB (Smith et.al. 1983).

(2) The operationalization of OCB will rely on the two most agreed upon dimensions of OCB.

(3) Longitudinal data from a sample of employees from a large Midwest (U.S.) insurance company will be used.

These issues and others related to the research design, setting, participants, operationalization of variables and data collection procedures will be detailed in the following sections.

**Research Design**

It is often desirable in social science research to ask questions about characteristics of people or groups in their natural setting. In such cases, field study research is the preferred strategy to utilize (McGrath et.al. 1982). A field study design is particularly appropriate in this research. Much of the initial theorizing regarding OCB (Organ 1983, Smith et.al. 1983) came out of laboratory experiments in social psychology regarding altruistic or charitable acts. The results of those altruism studies were
that subjects in a positive mood state (happy) were more likely to behave altruistically (Smith et al. 1983).

Contrary to those findings, OCB studies have not found subject mood (affective) state to add much explanatory power beyond the variables being studied (Organ & Konovsky 1989, Organ 1990). A reconciliation offered for the disparate findings is that behavior in chance encounters (typical of the social psychology studies) are more likely to access temporary mood while behavior which occurs in ongoing relationships in an organizational setting are more likely to have a more controlled (cognitive) character (Organ 1988a). In addition, because a single level of intrinsic motivation cannot be generated for a group of people there is no uniform intrinsic motivation treatment to which employees could be randomly assigned to determine its effect on to OCB. People already exist in the setting with some amount of intrinsic motivation from a variety of sources.

The nature of intrinsic motivation and the evidence that "one shot" laboratory-induced helpfulness (no matter how precisely measured) seems to be significantly different than such behavior exhibited in a work organization setting are central to the research design decision. The foregoing considerations make any true experimental research design unsuitable for this study and they argue for the use of the field study approach. By its nature, a field study design
maximizes realism at the expense of generalizability and precision of measurement. The threats to validity and other shortcomings of the field study research design must be recognized, and will be noted, in the interpretation of the data analyses.

**Measured Variables**

When investigating the distribution of and relationships among subjects' characteristics in their natural state utilizing a survey instrument is appropriate (Rigsby 1981). The employee survey, from which the data for this study were collected, was a compilation of many previously published instruments and the historical attitude survey used by the insurance company. The companion supervisory survey was one of the self-report scales, differently worded, to access supervisors' ratings of the employee behaviors that employees themselves rated on their survey. The total data collected were to be utilized to evaluate the trial quality circle program and as such go well beyond the requirements of this study. Following is a detailed explanation of each variable relevant to this study and how it was measured by the survey. The items applicable to the variables of interest were randomly ordered and imbedded in the larger questionnaire. The only difference between the questionnaire at times one and two was the
inclusion of questions regarding reaction to the trial program for those who participated in that program.

It is germane throughout this discussion that the researcher is faced with two mutually incompatible goals. On the one hand, using a different set of measures to extend the OCB line of research could potentially add something entirely new. On the other hand, the opportunity to extend this line of research without introducing a measurement difference could help refine the current understanding of OCB (McGrath et al. 1981). Since much of the OCB research has utilized ad hoc measures of OCB, the approach taken here is to extend the understanding of OCB while attempting to keep some consistency of measurement with previous studies.

In-Role versus Organizational Citizenship Behavior

One concern inherent in any discussion of OCB is the ability of employees and supervisors to distinguish reliably between in-role (required) behaviors and OCB (extrarole behaviors). Two studies that bear directly on this problem indicate that the two types of behavior are practically as well as conceptually distinguishable. O'Reilly & Chatman (1986) found evidence of divergent validity between prosocial extrarole behavior aimed at the organization (OCBO) and in-role performance. Williams & Anderson (1991) demonstrated that survey respondents can differentiate between in-role behaviors, OCBO and OCBI.
Through a principal components analysis, O’Reilly & Chatman (1986) obtained unambiguous loadings for in-role and extrarole behaviors on 7 of 11 items intended to measure those constructs. The data were from self reports by employees of a university. It is important to note that, of the items which represented extrarole behavior, only OCBO-type items could be retained. With their second sample, O’Reilly & Chatman (1986) were able to find only one underlying interpretable factor for those same 7 items from the first study. However, the second study data were self-report data from college students answering a survey adjusted to reflect academic "work" behavior rather than employment work behavior. Given the rather diffuse nature of student academic work (and the truncation of the OCB questionnaire because the authors believed some items had no student work equivalent), the relevance of the second study to a population of employees is at least questionable. There is also some concern with the use of self-report OCB data. Williams (1988) found a low correlation (.16) between self and supervisory ratings of OCB, perhaps indicating confounds other than common method variance in the self-report data.

Surveying a sample of fulltime employees and their supervisors, Williams and Anderson’s (1991) data produced a clear three factor representation (in-role, OCBI and OCBO)
of performance from a 20 item scale. Given that the subjects were technical and professional employees from various organizations (attending evening MBA classes), the Williams and Anderson (1991) results seem particularly compelling. Inasmuch as those surveyed were employees and supervisors from a variety of organizations, the external validity of the study seems high. In addition, it has been suggested that OCB is most easily recognizable at lower organizational levels, where duties are relatively more well defined (Organ 1988a). The Williams and Anderson findings consequently appear even stronger, considering that participants were assessing jobs that are likely to have somewhat indefinite formal role parameters. The subjects held jobs with high administrative and service components, which make agreement on precise role boundaries difficult, and in-role behavior, OCBO and OCBI were still reliably distinguishable.

Besides the preceding studies, evidence for the discriminant validity of in-role versus extrarole behavior comes indirectly from Puffer (1987). Using an ad hoc measure of prosocial behavior for retail salepeople, Puffer's found a correlation of only .16 between prosocial extrarole behavior and sales performance. This indicates that supervisors did not rate the prosocial behavior of the
salespeople by virtue of some "halo effect" from the individuals' sales (performance) figures.

Operationalization of OCB

Sufficient justification for believing that employees and supervisors can differentiate between in-role and extrarole behavior leads to considering the dimensionality of the OCB construct. In the original research that developed the term "OCB" (Bateman and Organ 1983), a 30-item measure purported to access altruism, compliance, dependability, housecleaning, complaints, waste, cooperation, criticism/arguing with others and punctuality. In that case and others (eg. O'Reilly & Chatman 1986, Puffer 1987), however, OCB has been treated as a single factor construct in data analysis. Eisenberger et.al. (1990) operationalized extrarole behavior as the number of (formal) innovative suggestions and Schaubroeck and Ganster used participation in a nonrequired phoneathon as citizenship behavior for a sample of students. Among other dimensions that have been proposed are antisexism, consideration (listening, tact, self control, concern for needs and feelings of others) self acceptance and assertiveness (Motowidlo 1984). Organ (1988a) suggested the five dimensions of altruism, conscientiousness, courtesy, sportsmanship, and civic virtue. Nevertheless, when Moorman (1991) designed an OCB instrument to access those
dimensions, the five factor model was retained on the basis of content validity but not on the basis of the factor analysis. Using Organ's (1988a) five proposed dimensions, MacKenzie et al. (1991) generated items and evaluated their validity by having academic peers classify the items according to the apriori categories. However, after administering the instrument to a group of sales managers, sportsmanship and courtesy were dropped from their covariant structure model because neither had any impact on those managers ratings. Although the civic virtue items were retained, the items themselves are similar to the Smith et al. conscientiousness items.

OCB has most consistently been described in terms similar to the two previously mentioned dimensions of (1) OCB directed at specific individuals (OCBI) and (2) OCB directed at the organization in general (OCBO). It is generally acknowledged that OCB appears to be best represented by at least these two factors (Organ 1988a). Beginning with Smith et al. (1983), various studies using different measures of OCB (eg. O'Reilly & Chatman 1986, Puffer 1987, Williams & Anderson 1991) consistently generate at least OCBO and OCBI as distinct and interpretable factors. Researchers have endeavored to discover the differences between the two factors (Williams & Anderson, 1991; Organ & Konovsky, 1989). Underscoring the
distinction, Brief and Motowidlo (1986) proffer that prosocial acts toward individuals and toward organizations are independent enough to be "conceptually and analytically" distinguishable. This study expects and examines the distinction between OCBO and OCBI. In addition, following on the advice of Dalton and Cosier (1988), the relationships of the global OCB dimension are explored along with the relationships of the individual factors.

Smith et.al. (1983) conducted semistructured interviews with managers from a number of organizations to identify "instances of helpful but not absolutely required, job behavior". They analyzed the approximately 500 responses of another diverse group of managers to the 16-item questionnaire thus generated. Using conservative criteria for interpreting the results they consistently arrived at a two factor representation for OCB -- behavior aimed at helping a specific person (altruism) and behavior that is impersonal and "akin to what a good employee ought to do" (conscientiousness).

The OCBO dimension focuses on discretionary cooperative behaviors not directed toward any specific individual in the workplace but which are nonetheless helpful to the organization in general. These are behaviors such as exhibiting hypervigilent punctuality or attendance and speaking well of the organization. The first construction
of what can be considered OCBO comes from the Smith et al. (1983) study mentioned earlier. That study, which created the OCB scale most often utilized to measure OCB, called the two factors that were found altruism and "generalized compliance". The generalized compliance factor was described as behavior that is "indirectly helpful to those involved in the system" and similar to compliance with an internalized norm of the way things "should" be done. Organ (1988a) suggested that a more descriptive term for such, by definition, voluntary behavior would be conscientiousness. Rather than imply any unintended connotations, OCBO simply denotes good citizen behavior not directed at a particular individual. OCBO always has only one target to consider.

The focal point of the OCBI dimension is the traditional notion of altruism toward a specific individual (whether that individual be a supervisor, co-worker or client) but with important distinctions. OCBI differs from that more general construct in that the action must be (1) discretionary (extrarole) helping behavior, (2) undertaken with no expectation of organizational reward and (3) work to the general benefit of the organization. By definition then, OCBI always has two targets -- the individual to whom it is directed and the best interests of the organization.

Brief & Motowidlo (1986) contend that: "If people are behaving prosocially toward the organization as a whole,
they should be more likely to choose perform prosocial acts toward individuals that are organizationally functional and avoid those that are dysfunctional and inconsistent with the organization’s objectives." Helping actions toward an individual, however, do not necessarily benefit the organization which creates the context for that prosocial behavior and does not automatically mean the organization’s welfare will be taken into account. For purposes of this study therefore, no matter how helpful or selfless a behavior is, if it works counter to the interests of the organization it is not considered OCBI. Another concern with this construct is that it is likely contaminated by retrospective rationality. The results, regardless of intent, will determine whether the act will later be judged in the best interest of the organization.

**Measurement of OCB**

The discussion and measurement of OCB began with the studies of Bateman and Organ (1983) and Smith et.al. (1983). The dimensionality of OCB has received much attention in the literature, much of it focusing on the Smith et.al. (1983) OCB scale. Williams, Podsakoff and Huber (1986) found the Smith et.al. (1983) scale produced three factors -- altruism (OCBI) and the OCBO-type factor breaking down into impersonal conscientiousness and attendance. Organ and Konovsky (1988) also found the scale to have a three-factor
representation. Their third factor, beyond altruism and conscientiousness, appeared to be a measurement artifact consisting solely of negatively worded items with a positive connotation. In reviewing the psychometric properties of the OCB scale (Smith et al. 1983), with a sample half the size of Smith et al. (1983), the data of Dalton and Cosier (1988) provided three factors. The three factors were helping behavior, punctuality and effective use of time -- with one quarter of the items not loading robustly on any factor. Their sample, however, (n=264) was composed of students who were satisfying a course requirement and were responding as a hypothetical employee.

Farh et al. (1990) also used the Smith et al. (1983) scale in their study (n=195). They found the altruism and conscientiousness (OCBI and OCBO) two-factor representation to fit best. In fact, Farh et al. (1990) performed a congruence test to gauge the degree of factor similarity to the Smith et al. (1983) two-factor solution. The coefficient of congruence was well within the range to indicate that the same two-factor representation fit both sets of data very well. Beginning with the Smith et al. (1983) study, it appears that OCB can be dependably (if not completely, in every setting) represented by these two factors. Although a two-factor representation of OCB is expected to be most appropriate, in accord with the
recommendation of the Dalton & Cosier (1988), the global OCB dimension and its relationships will also be reported. It is important to report findings for the global dimension when expecting the subscales (factors) to be related to other variables. Global OCB is measured as the sum of all items which load sufficiently enough on a factor to retain the item in the instrument.

All of the foregoing reasoning argues for using the OCB scale (Smith et al. 1983) in that it is (1) the most often utilized and (2) the most extensively examined and validated instrument used to measure OCB (Dalton & Cosier 1988). The measure seems to have sufficient reliability. Smith et al. (1983) report a .91 coefficient alpha for OCBI and a .81 coefficient alpha for OCBO. Farh et al. (1990) report a coefficient alpha of .82 for OCBI and .90 for OCBO. This study will, nonetheless, conform to the Dalton and Cosier recommendation (1988) to verify the psychometric properties of the Smith et al. (1983) OCB scale for any particular sample.

The Smith et al. (1983) OCB scale is a sixteen item measure asking supervisors for a reaction to how characteristic the behavior is of a particular employee. It is a five-point Likert-type scale with response anchors ranging from "very characteristic" to "not at all characteristic" and a separate "does not apply" response for
each item. Appendix A contains the OCB scale (Smith et al. 1983) items which comprised the supervisory survey. Based on Smith et al. (1983) and Farh et al. (1990) factor analyses, the dimension each item is expected to represent is indicated along with it.

Because of the somewhat indeterminate nature of OCB (Organ 1988a), and the retrospective interpretation of what passes for OCB, it makes sense that supervisory ratings of OCB tell only part of the story. Because variance in ratings from supervisors may consist largely of actions deliberately aimed at supervisory attention (Organ & Konovsky 1989), it may be that supervisor-rated OCB represents more instrumental behavior than the concept implies. There are those (Schnake 1991) who suggest that part of measuring OCB should be employee-reported intentions of their actions. Given the ongoing (as opposed to one time) nature of OCB and the social desirability of appearing altruistic and exemplary, this researcher questions the validity of such a measure.

Alternative sources of OCB information are the individuals themselves and the individuals' colleagues. Williams (1988) found that self and supervisor ratings of in-role behavior versus OCBO and OCBI were much cleaner than results from coworker ratings. Coworker ratings showed in-role behavior items loading on OCBO. Schnake (1991),
suggests doing at least two of following categories of measures -- self report, supervisor, intended, perceived. Part of the employee survey is a self report of OCB. In line with Schnake (1991), OCB data is available from both the employee and the employee's supervisor. This researcher would argue that inasmuch as supervisors are perceivers, and employees can be logically expected to take their own intentions into account, all of Schnake's (1991) four categories are addressed. An adapted OCB scale (Smith et.al. 1983) for self reporting was used to provide appropriate wording for employees reporting their own behaviors. The five-point plus one Likert-type scale was retained along with the anchors for those points. Appendix B lists the items which comprise the OCB self-report scale along with the dimension each item is expected to load on.

Intrinsic Motivation

Much of the rationale for investigating intrinsic motivation and OCB comes out of those studies linking OCB and task characteristics (Williams 1988, Farh et.al. 1990, Williams & Anderson 1990). Those studies were theoretically based on the Job Characteristics Model (Hackman & Oldham 1976) and the companion Job Diagnostic Survey (Hackman and Oldham 1975). In an attempt to maintain some continuity with those studies, intrinsic motivation is measured here by the part of the Job Diagnostic Survey (1975) purporting to
measure that construct. The terms intrinsic motivation and internal work motivation are used interchangeably (Hackman & Oldham 1975) to describe the degree to which an employee is self-motivated to perform effectively. It is meant to measure feelings experienced from doing well or poorly on a job.

The Internal Work Motivation Scale (Hackman & Oldham 1975) is a six-item Likert-type scale with seven point anchors. The response anchors used by Hackman and Oldham (1975) and in this research are: disagree strongly; disagree; disagree slightly; neutral; agree slightly; agree; agree strongly. While the Job Diagnostic Survey (Hackman & Oldham 1975) has been administered to several large samples of employees from widely different occupations and organizations, reliabilities are reported here only from studies that reported such information for the Internal Work Motivation Scale (Hackman & Oldham 1975) separately.

Based on a sample of 658 blue and white collar employees from seven organizations (service and industrial), Hackman and Oldham (1976) reported a Spearman-Brown internal reliability of .75 for the six-item scale. With a sample of 272, Kim and Schuler (1979) reported a coefficient alpha of .79. Pierce, Dunham and Blackburn (1979) reported a coefficient alpha of .73 using a four item version for a sample of 398 subjects. Bringing together the results from
several different studies with a total sample size of nearly 7000, the Spearman-Brown internal reliability was .69 (Oldham, Hackman & Stepina 1978). These studies demonstrate adequate reliability for the scale. Appendix C contains the items that comprise the Internal Work Motivation Scale (Hackman & Oldham 1975) and that were embedded in the larger employee questionnaire.

Organizational Commitment

Organizational Commitment is defined as:

(1) a desire to maintain membership in the organization, (2) belief in and acceptance of the values and goals of the organization and (3) a willingness to exert considerable effort on behalf of the organization (Mowday et.al. 1982).

O’Reilly and Chatman (1986) use a refinement of the above definition to test the relationship between commitment and OCB. Rather than identification and internalization being part of the same concept, they separate them as distinct types. Identification signifies a feeling of belonging to the organization, whether or not there is agreement with the goals and values of the organization. Internalization would then signify a higher level of commitment whereby the individual not only identifies but personally adopts the organization’s goals and values. They found the three factors to be differentially related to extrarole performance for a sample composed of employees and
students. Eisenberger et.al. (1990) defined organizational commitment as an affective attachment to the organization that was found to be related to their OCB measure. Schaubroeck and Ganster (1991) found unidimensional organization commitment to be directly related to extrarole prosocial behavior but the subjects were from volunteer organizations and commitment were unusually high in comparison to work organization norms.

Williams and Anderson (1991) followed the lead of O'Reilly and Chatman (1986) and attempted to differentiate between compliance, identification and internalization. Their factor analysis could not support a separation of the three and the factors were therefore combined to form a unidimensional commitment factor. The commitment factor did not correlate with either of their OCB factors.

Employee attitudinal commitment to the employer was measured using the Organizational Commitment Questionnaire (OCQ) developed by Mowday, Porter and Steers (1979). Although organizational commitment has been found to be unstable for new employees (Porter et.al. 1974, Werbel & Gould 1984), the OCQ, or OCQ with minor variations, has shown more than adequate reliability in previous studies. It has generally been recognized as the seminal measure of organizational commitment (Eisenberger et.al. 1990). Mowday et.al. (1979) administered the OCQ to employees in a wide variety of jobs
in nine diverse work organizations. They reported Cronbach Alphas ranging from .82 to .93, with a median of .90. More recently, similarly high alpha coefficients of .89 (Angle & Perry 1986), .88 (Martin & Peterson 1987) and .92 (Folger & Konovsky 1989) have been reported.

The OCQ consists of fifteen items that are each measured on a seven-point Likert-type scale. Mowday et.al. (1979) label the seven anchors: strongly disagree; moderately disagree; slightly disagree; neither disagree nor agree; slightly agree; moderately agree; and strongly agree. In the research proposed here, because these items were randomly ordered and imbedded with items from other instruments, the seven anchors for the OCQ items became: strongly disagree; disagree; slightly disagree; neutral; slightly agree; agree; strongly agree. Appendix D contains the items that comprise the OCQ (Mowday, Porter & Steers 1979) and that were embedded in the larger employee questionnaire.

Sample Selection

The sample of subjects accessed in this study includes fulltime administrative and clerical employees of one division of the corporate headquarters of a Fortune 500 insurance company located in the Midwest. During the period covered by this study, the division was the newest and most
profitable (and only expanding) division of the company. The division management had assembled a taskforce which had spent the prior year (1990) addressing quality of worklife issues for the division. Interested in introducing a quality circle program for the division, management had authorized the taskforce to conduct a trial quality circle program in three division units. The research reported here is a subset of the larger study meant to evaluate the results of that trial program.

The units chosen represented, in the taskforce members' opinions, the units with supervisors most likely to be supportive of such a program, ie. units predisposed to produce success. Clearly, the chosen units represent a convenience sample which are probably not representative of even this insurance company. Whenever random assignment from a population is not possible (common in field studies), there is a threat to the external validity of the study (Campbell & Stanley 1963). In particular, since the sample is not randomly chosen, the sample may systematically differ from other groups in ways which would suggest alternative explanations for any found effects. For example, a rival explanation for variation in level of OCB in this study could be that employees attracted to and/or selected for this successful division are natural "go getters" or have a
high tolerance for unfairness because of the satisfaction they experience by being associated with success.

In order that the (non-random) selection problem not be exacerbated by surveying only those units expressly chosen by the taskforce, approximately half of the sample surveyed is from comparison units matched to those chosen for the quality circle trial. Those in the trial units were offered the opportunity to participate in the trial program. Not all those who were offered the opportunity volunteered for the trial and not all those that volunteered actually participated after quality circle training. Although the non-trial units are not true control groups, they do provide a basis for comparison on some important aspects.

Comparison units were chosen based on having the same manager (but different supervisor) and performing similar though not identical work. It is assumed that units having the same manager have more comparable work norms and microculture while similar work should provide like opportunities for experiencing intrinsic motivation and exhibiting OCB. The comparison group strategy makes rival explanations, such as, "supervisors amenable to employee involvement select employees with a less instrumental view of work or with an altruistic predilection", less likely. In addition, the use of comparison groups should increase
internal validity since comparison units will be more likely to have experienced the same historical events.

Table 2 shows the distribution of subjects by work unit. There were data from 117 subjects at time one and 97 subjects at time two. 97 subjects provided data for both time one and two. Complete sets with both supervisory and self-report surveys for time one and time two were available for a sample of 54 subjects.

<table>
<thead>
<tr>
<th>TIME ONE</th>
<th>QC Trial Group</th>
<th>Comparison</th>
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<tbody>
<tr>
<td>General Ledger</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Customer Service</td>
<td>28</td>
<td>18</td>
</tr>
<tr>
<td>Payout Administration</td>
<td>21</td>
<td>17</td>
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<tr>
<th>TIME TWO</th>
<th>QC Trial Group</th>
<th>Comparison</th>
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<tbody>
<tr>
<td>General Ledger</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Customer Service</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Payout Administration</td>
<td>22</td>
<td>11</td>
</tr>
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</table>

There did not appear to be anything unique about those individuals who provided data for only one of the two administrations. The various reasons for being unavailable were: being hired within the study period; being sick on one
of the administration dates; or leaving the unit (not necessarily the division or the company) during the time period. Because approximately half the sample was offered the opportunity to receive training and participate in the quality circle trial it is plausible that this difference may cause more variability in intrinsic motivation than might otherwise be the case. This is an advantageous difference since more variability would make any relationships between intrinsic motivation and OCB more detectable.

Data Collection Procedures

Data collection for the present study was conducted using an employee survey questionnaire focusing on the variables of interest, as they occur in the workplace, and a companion survey completed by those employees' supervisors. The questionnaires were designed to provide quantitative data measuring the variables of interest. The instruments were administered twice approximately four and one-half months apart, in the first half of 1991. In the only longitudinal study of OCB available, Bateman and Organ (1983) studied the relationship between job satisfaction and OCB. In addition to not being able to discern a single causal direction, they could not conclude that the relationship was not based on a common cause of variation.
The test-retest reliability of the OCB measure (.80) made it difficult for another variable to add significantly to the explanation of OCB. If, as the Bateman and Organ (1983) study suggests, either changes in OCB or perceptions of changes in OCB happen slowly then the six-week time lag which they used may not have been long enough to discern a functional relationship. The longer time period of this study should help address that problem. While the longitudinal data in this study are not used to determine causality they provide stronger evidence of any functional relationships between the variables.

The longitudinal data for this study were collected as part of a broader study, undertaken by the employer, designed to evaluate the results of a trial quality circle program. In addition, for time one, the field study capitalized on the administration of the employer's annual attitude survey by appending this researcher's questions to the historical employee questionnaire. At time two the entire instrument (including the historical attitude questions) was readministered to the employees and the companion survey was readministered to those employees' supervisors. Whenever an investigator asks for responses the subject is thereby required to react by formulating a response. This reactivity is a threat to internal validity because a response is demanded whether there previously
existed an attitude or not (Campbell & Stanley 1963). External validity is also threatened because, just by virtue of the fact that the questions were asked of one group and not another, generalizability is suspect (Campbell & Stanley 1963). Because subjects responded to a large number of questions that they believed were related to evaluating the quality circle trial, artificially induced attitudes may not have been as likely. It is possible that the imbedding of the questions relevant to this research somewhat reduced the demand characteristic of questions asked of the employee sample. Their reactions were not framed by knowing the purpose of this study or by recognizing groupings of the questions (for this research) which might frame responses.

At both time one and time two, the questionnaire was administered to employees by the investigator during regular work hours. In groups of approximately twenty to thirty at a time, they completed a self-report survey on paid company time and premises with the researcher present to administer materials and answer questions. The researcher collected all materials at the end of each session and removed the materials from the company building after the particular day’s sessions were complete. Employees were asked to identify themselves on the questionnaire so that their supervisors could be contacted to fill out the companion (OCB) survey which would be combined with their survey
responses. They were given written and spoken assurances by the investigator and company representatives that their individual responses would be strictly confidential and that only aggregate data would be reported to the organization. At each session, a member of the Quality of Worklife taskforce introduced the investigator, made assurances concerning confidentiality and then left the room.

Companion survey forms were distributed, via members of the Quality of Worklife taskforce members, to the employees' supervisors on the same day as the employee surveys were completed. The supervisors completed the questionnaires regarding their individual employees and returned them directly to the researcher (by mail or in person). At time one, supervisory ratings were returned to the researcher anywhere from the same day as the employee surveys were completed to as much as three weeks later. At time two, supervisory ratings were returned anywhere from the same day as the employees were surveyed to as much as twelve weeks later. Some supervisors did not return completed questionnaires in spite of extensive follow up by the researcher.

Supervisor questionnaires were always returned in batches. Any given supervisor did not necessarily return the questionnaires at the same time as another supervisor but questionnaires for all those who reported to a given
supervisor were returned at the same time. Consequently, there are 114 sets of materials from time one and 98 sets from time two. Complete sets of material (both employee and supervisor surveys from both time one and time two) are available for 54 participants. The quantitative data are then statistically analyzed to test the hypothesized relationships of interest as outlined in Chapter II. When readministering the same instrument an alternative explanation, especially in attitude studies, can always be that the instrument itself changed attitudes from time one to time two (Campbell & Stanley 1963). While there may be a testing effect at time two in this research, the imbedding of the items of interest in the larger employee questionnaire may somewhat mitigate this effect. Additionally, the participant instructions referring to evaluation of the quality circle trial program as the purpose of the study may have acted as a distractor.

Data Analysis

This section will describe in detail the analyses and statistical tests performed on the collected data. The conceptual relationships proposed by the study are examined by testing the specific hypotheses outlined in Table 1 in Chapter II.
The data samples at time one and time two are described by reporting means and standard deviations for subjects' age, education, job tenure and organizational tenure. A further breakdown of the time one and time two data is done by (quality service circle) trial groups versus non-trial groups (comparison) and number of male and female subjects. It is routine to describe the characteristics of the sample of data, however, trial versus non-trial group membership is the only one theoretically relevant to analysis of the study data. Being offered the opportunity to participate in the quality circle trial project (or knowing that such an opportunity was offered to others but was personally unavailable) could have an effect on exhibiting OCB. The freedom of choice (or lack of choice) could impact intrinsic motivation through feelings of efficacy. It is also plausible that since being able to choose is in itself a form of participation, organizational commitment could be impacted through its relationship to job satisfaction. It is necessary, however, to empirically establish whether membership in a choice or non-choice group has an effect independent of either intrinsic motivation or organizational commitment. This is accomplished by entering membership as a dummy variable in the multiple regression analyses to discern any such effect.
Preliminary Analyses

Prior to investigating the substantive hypotheses, factor analysis of the OCB scale is appropriate. Based upon the research regarding the dimensionality of OCB and the Smith et al. (1983) OCB scale a two factor model of OCBO and OCBI is expected in this study. It is still important, in agreement with Dalton and Cosier (1988), to verify the psychometric properties of the scale for any given sample. Principal factor analysis to confirm a two factor representation is utilized on the 16-item OCB supervisor and self-report scales. Given the correlation (.55) previous studies have found between OCBO and OCBI (Organ 1988, Fahr et al. 1990, Williams & Anderson 1991), an oblique rotation rather than an orthogonal rotation is suitable to identify the factors. There are four different sets of OCB data: OCB self-report time one, OCB self-report time two, OCB supervisor rating time one and OCB supervisor rating time two. Separate factor analysis of each of the four OCB data sets is necessary. It is not proper to combine all four data sets because of the predominance of the same raters and ratees in time one and time two data. The four sets of factor analyses are reconciled through theory explication, through comparison to each other and comparison to factor loadings in other research using the same scale (Smith et al. 1983, Farh et al. 1990).
Although there are no specific hypotheses that pertain to relating proposed dimensions of organizational commitment to OCB, principal factor analysis of the OCQ (Mowday, Porter & Steers 1979) scale is also appropriate. Because other research has resulted in mixed findings for multidimensional organizational commitment (O’Reilly & Chatman 1986, Williams & Anderson 1991), and the OCQ purports to measure (1) intention to remain with the organization, (2) belief in organizational values and (3) willingness to exert effort, it is prudent to establish the factor structure of the OCQ items prior to testing the substantive hypotheses. The first step is to perform separate factor analyses of the time one and time two organizational commitment items. The second step requires reconciliation of the two analyses on the basis of theory, previous research factor structures and the factor representation chosen for the OCB items.

Cronbach’s coefficient alphas (to assess reliability of each measure), means and standard deviations are reported for:

(1) the OCB scale (Smith et.al. 1983);
(2) the OCB subscales (based on the factor analyses);
(3) the OCQ (Mowday, Porter & Steers 1979);
(4) any OCQ subscales (based on the factor analyses); and
(5) the Internal Work Motivation scale (Hackman & Oldham 1975).
Multiple Regression Analyses

The use of longitudinal data in this study provides a stronger test of the proposed relationships. Examining the change of OCB over time makes it possible to partial out the contribution of intrinsic motivation and organizational behavior to that change. Because this is not an experimental manipulation no causal statements can be made, however, the study of change allows a "cleaner" analysis of the proposed relationships. The longitudinal data makes it possible to evaluate the variance intrinsic motivation and organizational behavior contribute to OCB while controlling for the relationship of OCB to itself over time. This involves utilizing multiple regression with OCB at time one as one of the independent variables. This is equivalent to using regression-adjusted residualized independent variables to predict the dependent variable (Cohen & Cohen 1983). The alternative would involve using the panel data to perform static regression analyses with all variables measured at the same time.

Intrinsic Motivation and OCB Variables

Hypotheses 1, 4, and 7, which propose a positive relationship between intrinsic motivation and an OCB variable (OCB, OCBO, OCBI), are tested using regression analyses. The time two OCB variable is regressed on
intrinsic motivation at time one, organizational commitment at time one and the same OCB variable at time one.

**Hypothesis 1:** There is a positive relationship between intrinsic motivation and OCB.

\[(3-1) \quad OCB_{t2} = B_1^{\text{intrinsic motivation}_{t1}} + B_2^{\text{organizational commitment}_{t1}} + B_3^{OCB_{t1}}\]

**Hypothesis 4:** There is a positive relationship between intrinsic motivation and OCBO.

\[(3-2) \quad \text{OCBO}_{t2} = B_1^{\text{intrinsic motivation}_{t1}} + B_2^{\text{organizational commitment}_{t1}} + B_3^{\text{OCBO}_{t1}}\]

**Hypothesis 7:** There is a positive relationship between intrinsic motivation and OCBI.

\[(3-3) \quad \text{OCBI}_{t2} = B_1^{\text{intrinsic motivation}_{t1}} + B_2^{\text{organizational commitment}_{t1}} + B_3^{\text{OCBI}_{t1}}\]

A t-test is performed on the beta weight for intrinsic motivation in the regression equations to test the significance of the relationship while controlling for the influence of organizational commitment and the relationship of the OCB variable to itself over time.

**Organizational Commitment and OCB Variables**

Hypotheses 2 and 5, which propose a positive relationship between organizational commitment and an OCB variable (OCB, OCBO), are tested using regression analyses. The time two OCB variable is regressed on intrinsic motivation at time one, organizational commitment at time one and the same OCB variable at time one.
Hypothesis 2: There is a positive relationship between organizational commitment and OCB.

\[(3-4) \quad OCB_{t2} = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 OCB_{t1}\]

Hypothesis 5: There is a positive relationship between organizational commitment and OCBO.

\[(3-5) \quad OCBO_{t2} = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 OCBO_{t1}\]

A t-test is performed on the beta weight for organizational commitment in the regression equations to test the significance of the relationship while controlling for the influence of intrinsic motivation and the relationship of the OCB variable to itself over time.

**Interactions and OCB Variables**

Hypotheses 3 and 6, which propose a significant interaction between intrinsic motivation and organizational commitment in relation to an OCB variable (OCB, OCBO), are tested using moderated regression analyses.

The time two OCB variable is regressed on intrinsic motivation at time one, organizational commitment at time one, the same OCB variable at time one and an interaction term (product variable) of intrinsic motivation and organizational commitment.

Hypothesis 3: There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCB.
Hypothesis 6: There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCB0.

A stepwise regression is performed to determine the additional variance, in the OCB variable, that the interaction term contributes after accounting for the contribution of the other independent variables. A F-test is used for finding the significance of the change in $r^2$ due to addition of the interaction term.

**Absence of Relationship**

Hypothesis 8 proposes no significant relationship between organizational commitment and OCBI. This proposal is tested using regression analysis. Time two OCBI is regressed on organizational commitment at time one, intrinsic motivation at time one and OCBI at time one.

Hypothesis 8: There is no relationship between organizational commitment and OCBI.

(3-8) \[
OCBI_{t2} = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 \text{OCBI}_{t1}
\]
A t-test is performed on the beta weight for organizational commitment in the regression equation to test for the absence of a significant relationship while controlling for the influence of intrinsic motivation and the relationship of OCBI to itself over time.

Hypothesis 9 proposes no significant interaction between intrinsic motivation and organizational commitment in relation to OCBI. This proposal is tested using moderated regression analysis. Time two OCBI is regressed on intrinsic motivation at time one, organizational commitment at time one, OCBI at time one and an interaction term (product variable) of intrinsic motivation and organizational commitment.

Hypothesis 9: There is no interaction between intrinsic motivation and organizational commitment in their relationship with OCBI.

\[ \text{OCBI}_{t2} = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 \text{OCBI}_{t1} + B_4 (\text{intrinsic motivation}_{t1} \times \text{organizational commitment}_{t1}) \]

A stepwise regression is performed to determine the additional variance, in OCBI, that the interaction term contributes after accounting for the contribution of the other independent variables. A t-test is used for finding the significance of the change in \( r^2 \) due to addition of the interaction term.
Correlational Analysis

Hypothesis 10 proposes a difference in magnitude between the correlation of intrinsic motivation with OCBO and the correlation of intrinsic motivation with OCBI.

Hypothesis 10: There is a difference in relative strength between the relationship of intrinsic motivation with OCBO and the relationship of intrinsic motivation with OCBI.

A Fisher $z'$ transformation would usually be performed and the results compared to normal curve critical values to test whether two correlation coefficients are significantly different from each other (rather than significantly different than zero). Because the correlation coefficients for OCBO with intrinsic motivation and OCBI with intrinsic motivation have not been determined on independent samples that procedure is not appropriate (Cohen & Cohen 1983). A $t$-test ($df=n-3$) using a calculation for the $t$-statistic that takes into account the correlation between OCBO and OCBI is used for the analysis (Steiger 1980).

Limitations of the Data Analyses

The factor representations for both OCB and organizational commitment are a matter of judgement rather than statistical correctness. Ultimately, the judgement rests on comparisons to previous research, expectations
derived from theory and the limits of the study’s data sample. The specific process of such judgements, therefore, cannot be separate from the actual results. The results, in part, dictate what judgements take precedence in the final analysis.

The are two hypotheses in the study (8 and 9) that propose the absence of a significant relationship. It is necessary to recognize that if no statistically significant relationship is found there are two explanations for such a finding. It can mean that, in fact, there is not a relationship. It may mean, however, that because of small sample size there is insufficient power to detect a true small or medium effect (Cohen & Cohen 1983). Small samples are a problem in any statistical analysis. In the case of proposing the absence of a relationship, probability is on the researcher’s side simply through limiting the size of the sample.

As in this study, numerous theories have postulated moderator effects. Research findings providing strong support for those effects are relatively rare (Cronbach 1987). The likelihood of finding the interaction term to be significant when the variables of interest are measured on interval rather than continuous scales is extremely limited (Russell & Bobko 1992). The use of continuous scales rather than the commonly used Likert-type scales has been found to
cause moderated regression effect sizes to increase by an average of 93\% (Russell & Bobko 1992). Given that all of the variables of interest in this study are measured on Likert-type scales, there is a built-in limitation to finding a significant interaction effect.
CHAPTER IV
DATA ANALYSIS RESULTS

This chapter presents the results of the data analyses for this study. A detailed description of the sample utilized for the study is provided and the psychometric properties of the major measures of the study are described. The empirical evidence related to the hypotheses presented in Chapter II is presented. All analyses will adhere to the convention of limiting the probability of a Type I error (rejecting the null hypothesis -- that there is no relationship -- when the null is true) to five percent (p < .05) in order to consider the result significant.

Subject Demographics

The sample was 35% male (41) and 65% female (76) at time one and 31% male (30) and 69% (67) at time two. Table 3 reports the means and standard deviations for subjects' age, education, job tenure and organizational tenure for the overall sample, the quality circle trial group and the comparison group (units combined) at both time one and time two. Trial/ non-trial group member is the only subject descriptor that was anticipated to be relevant to analysis
### TABLE 3

**MEANS AND STANDARD DEVIATIONS FOR SAMPLE DEMOGRAPHICS**

<table>
<thead>
<tr>
<th></th>
<th>Time One</th>
<th></th>
<th>Time Two</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>s.d.</td>
<td>n</td>
<td>mean</td>
</tr>
<tr>
<td><strong>TOTAL SAMPLE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>29.57</td>
<td>6.83</td>
<td>117</td>
<td>29.36</td>
</tr>
<tr>
<td>Education</td>
<td>2.33</td>
<td>.82</td>
<td>117</td>
<td>2.32</td>
</tr>
<tr>
<td>Job Tenure</td>
<td>19.76</td>
<td>20.82</td>
<td>117</td>
<td>19.31</td>
</tr>
<tr>
<td>Organization Tenure</td>
<td>56.92</td>
<td>48.41</td>
<td>117</td>
<td>54.65</td>
</tr>
<tr>
<td><strong>QUALITY CIRCLE TRIAL GROUP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>30.12</td>
<td>6.51</td>
<td>66</td>
<td>29.46</td>
</tr>
<tr>
<td>Education</td>
<td>2.47</td>
<td>.75</td>
<td>66</td>
<td>2.48</td>
</tr>
<tr>
<td>Job Tenure</td>
<td>19.06</td>
<td>22.38</td>
<td>66</td>
<td>20.35</td>
</tr>
<tr>
<td>Organization Tenure</td>
<td>52.43</td>
<td>46.36</td>
<td>66</td>
<td>49.57</td>
</tr>
<tr>
<td><strong>COMPARISON GROUP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>28.86</td>
<td>7.21</td>
<td>51</td>
<td>29.17</td>
</tr>
<tr>
<td>Education</td>
<td>2.16</td>
<td>.88</td>
<td>51</td>
<td>2.15</td>
</tr>
<tr>
<td>Job Tenure</td>
<td>20.67</td>
<td>18.80</td>
<td>51</td>
<td>18.27</td>
</tr>
<tr>
<td>Organization Tenure</td>
<td>62.72</td>
<td>50.83</td>
<td>51</td>
<td>57.85</td>
</tr>
</tbody>
</table>
of the data. The impact of that distinction is explored in the multiple regression analyses.

**Psychometric Properties of Measures**

**OCB Scale Factor Analyses**

Prior to performing the regression analyses to investigate the substantive hypotheses, and following the recommendation of Dalton and Cosier (1988), factor analysis of the OCB scale was done to verify the psychometric properties for this particular sample. Based upon the research regarding the dimensionality of OCB and the Smith et al. (1983) OCB scale a two factor model of OCBO and OCBI was expected.

A peculiarity of the OCB scale (Smith et al. 1983) is that the possible responses to each of the 16 items consist of a five-point Likert-type scale and an "x" response, which indicates that the statement does not apply. Because the "x" is a legitimate response it was not coded as missing data. (Additionally, coding the "x" as missing data caused a loss of up to 50% of the respondents in the four sets of data.) The possibility of coding the "x" as the neutral point on the scale was considered. The neutral point is three on the five point scale with the end point anchors designating a range from "very characteristic" (5) to "not at all characteristic" (1). Depending on the mean of the non-
"x" responses to the particular item, however, the neutral point on the scale would not be neutral in its effect on the various statistical analyses to be performed.

It was decided that "x" responses would be coded as the mean of the non-"x" responses to an item. Substituting the mean would be neutral in terms of the statistical analyses. This course of action is also consistent with recommended methods of dealing with missing data for independent variables (Cohen & Cohen 1983). The only consideration which would have made this approach suspect was if "x" responses were not randomly distributed throughout the items. If it were the case that "x" responses predominated in reply to specific items then the mean would consequently be based upon a small number of non-"x" responses. The data did not show any pattern of "x" responses, therefore, substituting the mean was employed.

Table 4 displays the means of the sixteen items for four sets of data. The four different sets of OCB data that were analyzed were: OCB self-report time one, OCB self-report time two, OCB supervisor rating time one and OCB supervisor rating time two. The item mean score from the pertinent time and category replaced the "x" response in subsequent statistical analyses. Because the mean scores for the items are consistently not the neutral point (3) on the OCB scale Table 4 demonstrates that substituting the
### Table 4

**Means of Individual OCB Scale Items**

<table>
<thead>
<tr>
<th></th>
<th>Supervisor1</th>
<th>Selft1</th>
<th>Supervisor2</th>
<th>Selft2</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCB1</td>
<td>3.75</td>
<td>4.10</td>
<td>3.82</td>
<td>3.96</td>
</tr>
<tr>
<td>OCB2</td>
<td>3.65</td>
<td>4.04</td>
<td>3.89</td>
<td>4.20</td>
</tr>
<tr>
<td>OCB3</td>
<td>3.59</td>
<td>4.06</td>
<td>3.69</td>
<td>4.11</td>
</tr>
<tr>
<td>OCB4</td>
<td>4.01</td>
<td>4.57</td>
<td>3.81</td>
<td>4.62</td>
</tr>
<tr>
<td>OCB5</td>
<td>3.41</td>
<td>3.50</td>
<td>3.48</td>
<td>3.50</td>
</tr>
<tr>
<td>OCB6</td>
<td>3.11</td>
<td>3.19</td>
<td>3.02</td>
<td>3.43</td>
</tr>
<tr>
<td>OCB7</td>
<td>3.72</td>
<td>4.02</td>
<td>3.80</td>
<td>3.92</td>
</tr>
<tr>
<td>OCB8</td>
<td>3.95</td>
<td>3.87</td>
<td>3.76</td>
<td>4.04</td>
</tr>
<tr>
<td>OCB9</td>
<td>3.54</td>
<td>4.27</td>
<td>3.81</td>
<td>4.53</td>
</tr>
<tr>
<td>OCB10</td>
<td>3.68</td>
<td>4.39</td>
<td>3.60</td>
<td>4.29</td>
</tr>
<tr>
<td>OCB11</td>
<td>3.45</td>
<td>3.89</td>
<td>3.58</td>
<td>3.72</td>
</tr>
<tr>
<td>OCB12</td>
<td>3.60</td>
<td>3.51</td>
<td>3.56</td>
<td>3.38</td>
</tr>
<tr>
<td>OCB13</td>
<td>3.55</td>
<td>3.55</td>
<td>3.44</td>
<td>3.70</td>
</tr>
<tr>
<td>OCB14</td>
<td>3.68</td>
<td>3.65</td>
<td>3.62</td>
<td>3.98</td>
</tr>
<tr>
<td>OCB15</td>
<td>3.34</td>
<td>3.15</td>
<td>3.16</td>
<td>3.23</td>
</tr>
<tr>
<td>OCB16</td>
<td>3.28</td>
<td>3.36</td>
<td>3.24</td>
<td>3.64</td>
</tr>
</tbody>
</table>
mean, rather than the neutral point, was an appropriate strategy.

SAS was used to perform a principal factor analysis on the four sets of data to confirm a two factor representation of the 16-item OCB scale. The convention of retaining the same number of factors as the number of eigenvalues that are greater than unity (one) was followed (Johnson & Wichern 1982). The most parsimonious factor representation is the one that retains the fewest factors possible, assuming they provide a satisfactory interpretation of the data. Selecting more factors with fine distinctions between them is not the best approach (Johnson & Wichern 1982). Orthogonal factor rotation assumes that the factors are independent of each other. Because previous studies have found correlations on the order of .55 between OCBO and OCBI (Organ 1988, Farh et.al. 1990, Williams & Anderson 1991), an oblique rotation, which does not require independent factors, was used to clarify the OCB scale factor solution. Table 5 shows a comparison of the factor analyses results from the four sets of data in this study and Smith et.al. (1983) and Farh et.al. (1990). Using .40 as the cutoff, the underlined number in each two column set of figures in Table 5 indicates on which factor the item loaded. Factor patterns were generally consistent across the four separate
<table>
<thead>
<tr>
<th>Item (R-reverse scored)</th>
<th>Time One OCB Sel</th>
<th>Time Two OCB Sel</th>
<th>Time One OCB Sup</th>
<th>Time Two OCB Sup</th>
<th>Smith et al (1983)</th>
<th>Farh et al. (1990)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help others who have been absent.</td>
<td>OCBI .289</td>
<td>OCBO .127</td>
<td>OCBI .674</td>
<td>OCBO -.137</td>
<td>OCBI .740</td>
<td>OCBO .033</td>
</tr>
<tr>
<td>Exhibits punctuality.</td>
<td>.400</td>
<td>.029</td>
<td>.223</td>
<td>.347</td>
<td>.014</td>
<td>.683</td>
</tr>
<tr>
<td>Volunteers for things that are required.</td>
<td>.648</td>
<td>.054</td>
<td>.623</td>
<td>.196</td>
<td>.434</td>
<td>.380</td>
</tr>
<tr>
<td>Takes undeserved work breaks. (R)</td>
<td>.186</td>
<td>.350</td>
<td>-.014</td>
<td>.655</td>
<td>-.024</td>
<td>.819</td>
</tr>
<tr>
<td>Orient new people even though it is not required.</td>
<td>.236</td>
<td>-.058</td>
<td>.602</td>
<td>-.280</td>
<td>.784</td>
<td>-.151</td>
</tr>
<tr>
<td>Attendance at work is above norm.</td>
<td>.117</td>
<td>.262</td>
<td>.155</td>
<td>.201</td>
<td>.165</td>
<td>.455</td>
</tr>
<tr>
<td>Helps others who have heavy work loads.</td>
<td>.613</td>
<td>.011</td>
<td>.608</td>
<td>.036</td>
<td>.830</td>
<td>-.057</td>
</tr>
<tr>
<td>Coasts toward the end of the day. (R)</td>
<td>.076</td>
<td>.036</td>
<td>-.130</td>
<td>.458</td>
<td>-.042</td>
<td>.710</td>
</tr>
<tr>
<td>Gives advance notice when unable to come to work.</td>
<td>-.039</td>
<td>.551</td>
<td>.055</td>
<td>.450</td>
<td>.176</td>
<td>.295</td>
</tr>
<tr>
<td>Great deal of time spent with personal phone conversations. (R)</td>
<td>.120</td>
<td>.086</td>
<td>-.212</td>
<td>.440</td>
<td>-.084</td>
<td>.787</td>
</tr>
<tr>
<td>Does not take unnecessary time off work.</td>
<td>-.083</td>
<td>.579</td>
<td>.158</td>
<td>.180</td>
<td>.080</td>
<td>.544</td>
</tr>
<tr>
<td>Assists supervisor with his or her work.</td>
<td>.553</td>
<td>-.043</td>
<td>.592</td>
<td>.068</td>
<td>.539</td>
<td>.205</td>
</tr>
<tr>
<td>Makes innovative suggestions to improve department.</td>
<td>.730</td>
<td>-.076</td>
<td>.599</td>
<td>.109</td>
<td>.466</td>
<td>.180</td>
</tr>
<tr>
<td>Does not take extra breaks.</td>
<td>.013</td>
<td>.632</td>
<td>.151</td>
<td>.646</td>
<td>.067</td>
<td>.672</td>
</tr>
<tr>
<td>Attends functions not required that help company image.</td>
<td>.234</td>
<td>.431</td>
<td>.242</td>
<td>.392</td>
<td>.225</td>
<td>.133</td>
</tr>
<tr>
<td>Does not spend time in idle conversation.</td>
<td>-.065</td>
<td>.627</td>
<td>-.011</td>
<td>.493</td>
<td>.073</td>
<td>.730</td>
</tr>
</tbody>
</table>

Eigenvalue (unrotated)  
Percentage Variance Explained  
Cumulative % Var. Explained
sets of data and with both Smith et.al. (1983) and Farh et.al. (1990). There were four areas of possible concern in the factor analyses results:

(1) Consistent with Smith et.al. (1983) and Farh et.al. (1990) item two (Exhibits punctuality.) loaded on the OCBO factor for both sets of supervisory data. It did not load on either factor for time two self-report and loaded (at exactly .40) on the OCBI factor for time one self-report.

(2) Item six (Attendance at work is above norm.) loaded on neither factor in three of the four sets of data. Consistent with Smith et.al. (1983) and Farh et.al. (1990) the item did load on OCBO for the supervisory time one data.

(3) Item nine (Gives advance notice when unable to come to work.) did not load for either time one or time two supervisory data. The item did, however, load strongly on the OCBO factor for the self-report data. Both Smith et.al (1983) and Farh et.al. (1990) found the item loading on an OCBO factor.

(4) Item fifteen (Attends functions not required that help company image.) loaded on the OCBO item for both sets of self-report data. It loaded on the OCBI factor for time two supervisory data and for Farh et.al. (1990). It did not load on either factor for time one supervisory data or Smith et.al. (1983).

For all but of item fifteen, the preponderance of the six sets of results, the four for this study plus Smith et.al (1983) and Farh et.al. (1990) -- gave the expected factor of the two factor OCBO/OCBI representation. In the case of item fifteen, two sets of results generated the opposite of the expected factor and two sets did not produce
any factor. Based on these equivocal results, and because item fifteen consistently had fewer responses than any other OCB item, item fifteen was grouped (as predicted) with OCBI items for subsequent analyses. This decision was made on the basis of Smith et.al (1983) and Organ (1988a) and the strong results obtained by Farh et.al. (1990).

Organizational Commitment Factor Analyses

Although there were no specific hypotheses pertaining to proposed dimensions of organizational commitment and OCB, other research findings have been mixed regarding multidimensional organizational commitment (O'Reilly & Chatman 1986, Williams & Anderson 1991). Additionally, the Organizational Commitment Questionnaire (OCQ) (Mowday et.al. 1979), purports to measure (1) intention to remain with the organization, (2) belief in organizational values and (3) willingness to exert effort. A principal factor analysis of the OCQ scale (Mowday, Porter & Steers 1979) was, therefore, performed to explore the factor structure for this study's sample. Separate factor analyses of the time one and time two organizational commitment items were conducted.

The convention of retaining the same number of factors as the number of eigenvalues that are greater than unity (one) was utilized (Johnson & Wichern 1982). The time one organizational commitment items produced a one factor solution. The first eigenvalue accounted for 74% of the
variance of the items. The second and subsequent eigenvalues were less than .94. The time two organizational commitment items also produced a one factor solution. The first time two eigenvalue accounted for 77% of the variance of the items. The second and subsequent time two eigenvalues were .79 or less. The factor analyses substantiate treating organizational commitment as a unidimensional variable for all subsequent analyses.

Scale Descriptive Statistics

Table 6 reports means, standard deviations, sample sizes and Cronbach's coefficient alphas (to assess reliability of each measure) for the measures of the major variables of the study at both time one and time two. The mean values for scales are virtually unchanged from time one to time two. For every scale, reliability increased from time one to time two while sample size decreased. The reliabilities of the supervisor-reported global and factor OCB measures were higher than the self-reported measures, in each case, with the OCBO self-reported scale displaying the lowest reliability (.62 and .65).

The supervisor-reported global OCB scale (Smith et al. 1983) displayed high reliability (.88 and .90) and the self-reported global OCB scale displayed adequate reliability (.70 and .75). The OCBO and OCBI factor subscales were also analyzed for reliability. The OCBO supervisor-reported
### TABLE 6
MEANS, STANDARD DEVIATIONS AND CRONBACH COEFFICIENT ALPHAS FOR STUDY MEASURES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Time One</th>
<th>Time Two</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>s.d.</td>
</tr>
<tr>
<td>OCB (supervisor)</td>
<td>57.27</td>
<td>8.54</td>
</tr>
<tr>
<td>max=80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCB (self-report)</td>
<td>61.23</td>
<td>7.00</td>
</tr>
<tr>
<td>max=80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCBO (supervisor)</td>
<td>32.32</td>
<td>6.15</td>
</tr>
<tr>
<td>max=45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCBO (self-report)</td>
<td>35.21</td>
<td>4.93</td>
</tr>
<tr>
<td>max=45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCBI (supervisor)</td>
<td>25.01</td>
<td>3.67</td>
</tr>
<tr>
<td>max=35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCBI (self-report)</td>
<td>25.94</td>
<td>3.75</td>
</tr>
<tr>
<td>max=35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization Commitment</td>
<td>76.43</td>
<td>12.6</td>
</tr>
<tr>
<td>max=105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>32.78</td>
<td>4.53</td>
</tr>
<tr>
<td>max=42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
subscale reliabilities (.87 and .88) were high and higher than the OCBI supervisor-reported subscale (.79 and .83) which displayed moderately high reliability. The OCBO self-reported subscale reliabilities (.62 and .65) were lower than the OCBI self-reported subscale reliabilities (.67 and .77). The self-reported subscale reliabilities were marginal to inadequate.

The Organizational Commitment Questionnaire (Mowday, Porter & Steers 1979) exhibited high reliability (.88 and .90) for both time one and time two. The Internal Work Motivation six item scale (Hackman & Oldham 1975) displayed adequate reliability (.72 and .78) at time one and two.

**Longitudinal Multiple Regression Analyses**

The results of the multiple regression analyses utilizing the longitudinal data collected in this research are presented in Tables 7 and 8. Table 7 displays $r^2$, standardized betas and t-statistics for the longitudinal regression models without interaction terms. Table 8 shows $r^2$ for the longitudinal regression models with interaction terms (moderated regression equations), the change in $r^2$ due to addition of the interaction term and the F-statistics related to the addition of the interaction term.
Unmoderated Longitudinal Regression

Hypotheses 1 and 2 proposed unmoderated positive relationships for (global) OCB with the independent variables.

Hypothesis 1: There is a positive relationship between intrinsic motivation and OCB.

Hypothesis 2: There is a positive relationship between organizational commitment and OCB.

One longitudinal multiple regression equation was used to evaluate both hypotheses. Time two OCB was regressed on organizational commitment at time one, intrinsic motivation at time one and OCB at time one. The significance of $B_1$ indicates the relationship between OCB and intrinsic motivation controlling for organizational commitment and the relationship of OCB at time two with itself at time one. The significance of $B_2$ indicates the relationship between OCB and organizational commitment controlling for intrinsic motivation and the relationship of OCB at time two with itself at time one.

\[
(4-1) \quad OCB_{t2} = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 OCB_{t1}
\]

The two rows under equation 4-1 in Table 7 give the results for this regression for supervisory OCB ratings and self-report OCB ratings. The model accounted for 63% (p<.0001) of the variance in supervisor-rated OCB at time
### TABLE 7

**R², PARTIAL REGRESSION COEFFICIENTS AND T-STATISTICS FOR LONGITUDINAL REGRESSION MODELS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Time One IM</th>
<th>Time One OC</th>
<th>Time One OCB*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>t</td>
<td>p</td>
</tr>
<tr>
<td><strong>Time One OCB variable of Interest (OCB, OCBO, OCBI)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4-1) OCB₂ = IM₁ + OC₁ + OCB₁</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCB₂ (supervisor)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>model $r^2 = .63$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 74 p = .0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.18</td>
<td>-1.08</td>
<td>.29</td>
</tr>
<tr>
<td>OCB₂ (self-report)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>model $r^2 = .40$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 80 p = .0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.17</td>
<td>-1.06</td>
<td>.29</td>
</tr>
<tr>
<td>(4-2) OCBO₂ = IM₁ + OC₁ + OCBO₁</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCBO₂ (supervisor)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>model $r^2 = .62$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 75 p = .0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.21</td>
<td>-1.90</td>
<td>.06</td>
</tr>
<tr>
<td>OCBO₂ (self-report)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>model $r^2 = .32$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 81 p = .0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.05</td>
<td>-.47</td>
<td>.64</td>
</tr>
<tr>
<td>(4-3) OCBI₂ = IM₁ + OC₁ + OCBI₁</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCBI₂ (supervisor)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>model $r^2 = .49$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 75 p = .0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.03</td>
<td>.36</td>
<td>.72</td>
</tr>
<tr>
<td>OCBI₂ (self-report)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>model $r^2 = .44$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 83 p = .0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.09</td>
<td>-1.01</td>
<td>.32</td>
</tr>
</tbody>
</table>

* Time One OCB variable of Interest (OCB, OCBO, OCBI)
OC - Organizational Commitment
IM - Intrinsic Motivation
two and 40% (p<.0001) of the variance in self-report OCB at time two. B₁ and B₂ and their respective t-values were not significant. The longitudinal analyses provided no support for Hypotheses 1 and 2.

Hypotheses 4 and 5 proposed unmoderated positive relationships for OCBO with the independent variables.

Hypothesis 4: There is a positive relationship between intrinsic motivation and OCBO.

Hypothesis 5: There is a positive relationship between organizational commitment and OCBO.

One longitudinal multiple regression equation was used to evaluate both hypotheses. Time two OCBO was regressed on organizational commitment at time one, intrinsic motivation at time one and OCBO at time one. The significance of B₁ indicates the relationship between OCBO and intrinsic motivation controlling for organizational commitment and the relationship of OCBO at time two with itself at time one. The significance of B₂ indicates the relationship between OCBO and organizational commitment controlling for intrinsic motivation and the relationship of OCBO at time two with itself at time one.

\[ OCBO_{t2} = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 \text{OCBO}_{t1} \]

The two rows under equation 4-2 in Table 7 give the results for this regression for supervisory OCBO ratings and
self-report OCBO ratings. The model accounted for 62% (p<.0001) of the variance in supervisor-rated OCB at time two and 32% (p<.0001) of the variance in self-report OCB at time two. B₁ and B₂ and their respective t-values were not significant. The longitudinal analyses provided no support for Hypotheses 4 and 5.

Hypothesis 7 proposed an unmoderated positive relationship for OCBI with intrinsic motivation. Hypothesis 8 proposed no relationship between OCBI and organizational commitment.

Hypothesis 7: There is a positive relationship between intrinsic motivation and OCBI.

Hypothesis 8: There is no relationship between organizational commitment and OCBI.

One longitudinal multiple regression equation was used to evaluate both hypotheses. Time two OCBI was regressed on organizational commitment at time one, intrinsic motivation at time one and OCBI at time one. The significance of B₁ indicates the relationship between OCBI and intrinsic motivation controlling for organizational commitment and the relationship of OCBI at time two with itself at time one. The significance of B₂ indicates the relationship between OCBI and organizational commitment controlling for intrinsic motivation and the relationship of OCBI at time two with itself at time one.
(4-3) \[ OCBI_{t2} = B_1 \text{intrinsic motivation}_{t1} + \\
B_2 \text{organizational commitment}_{t1} + B_3 OCBI_{t1} \]

The two rows under equation 4-3 in Table 7 give the results for this regression for supervisory OCBI ratings and self-report OCBI ratings. The model accounted for 49% (p<.0001) of the variance in supervisor-rated OCBI at time two and 44% (p<.0001) of the variance in self-report OCBI at time two. \( B_1 \) and \( B_2 \) and their respective t-values were not significant. The longitudinal analysis provided no support for Hypothesis 7. The longitudinal analysis supported Hypothesis 8. Proposing no relationship, however, capitalizes on the small number of cases and other statistical artifacts.

**Moderated Longitudinal Regression**

Hypothesis 3 proposed a moderated positive relationship for OCB with the independent variables.

**Hypothesis 3:** There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCB.

A longitudinal multiple regression equation with an interaction term, composed of the product of the two independent variables, was used to evaluate the hypothesis. Time two OCB was regressed on organizational commitment at time one, intrinsic motivation at time one, OCB at time one and an interaction term (product variable) of intrinsic
motivation and organizational commitment. Using a stepwise regression procedure, the contribution of the interaction term was evaluated by controlling for the contributions of intrinsic motivation, organizational commitment and OCB at time one. The change in $r^2$ indicates the percentage of variance attributable to the interaction term when that term enters the equation last. The significance of that change determines the significance of the contribution of the interaction term.

\[ OCB_{t2} = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 OCB_{t1} + B_4 (\text{intrinsic motivation}_{t1} \times \text{organizational commitment}_{t1}) \]

The two rows under equation 4-4 in Table 8 give the results for this regression for supervisory OCB ratings and self-report OCB ratings. The model accounted for 63% (p<.0001) of the variance in supervisor-rated OCB at time two and 41% (p<.0001) of the variance in self-report OCB at time two. For both the supervisory and self-report OCB data the change in $r^2$ due to addition of the interaction term was not significant. The longitudinal analysis provided no support for Hypothesis 3.

Hypothesis 6 proposed a moderated positive relationship for OCBO with the independent variables.
# TABLE 8

**CHANGE IN R² AND F-STATISTICS FOR LONGITUDINAL MODERATED REGRESSION MODELS**

**Time One (IM x OC)**

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model</th>
<th>$r^2$</th>
<th>$N$</th>
<th>$p$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4-4) OCBt2 = IMt1 + OCt1 + OCBt1 + (IMt1 x OCt1)</td>
<td>OCBt2 (supervisor)</td>
<td>model $r^2 = .63$</td>
<td>79</td>
<td>&lt;.0001</td>
<td>0</td>
<td>.24</td>
</tr>
<tr>
<td></td>
<td>OCBt2 (self-report)</td>
<td>model $r^2 = .41$</td>
<td>80</td>
<td>&lt;.0001</td>
<td>.01</td>
<td>1.24</td>
</tr>
<tr>
<td>(4-5) OCBOt2 = IMt1 + OCt1 + OCBOt1 + (IMt1 x OCt1)</td>
<td>OCBOt2 (supervisor)</td>
<td>model $r^2 = .62$</td>
<td>75</td>
<td>&lt;.0001</td>
<td>0</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td>OCBOt2 (self-report)</td>
<td>model $r^2 = .33$</td>
<td>81</td>
<td>&lt;.0001</td>
<td>.01</td>
<td>1.14</td>
</tr>
<tr>
<td>(4-6) OCBIt2 = IMt1 + OCt1 + OCBIt1 + (IMt1 x OCt1)</td>
<td>OCBIt2 (supervisor)</td>
<td>model $r^2 = .48$</td>
<td>75</td>
<td>&lt;.0001</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>OCBIt2 (self-report)</td>
<td>model $r^2 = .45$</td>
<td>83</td>
<td>&lt;.0001</td>
<td>.01</td>
<td>.73</td>
</tr>
</tbody>
</table>

OC - Organizational Commitment
IM - Intrinsic Motivation
Hypothesis 6: There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCBO.

A longitudinal multiple regression equation with an interaction term, composed of the product of the two independent variables, was used to evaluate the hypothesis. Time two OCBO was regressed on organizational commitment at time one, intrinsic motivation at time one, OCBO at time one and an interaction term (product variable) of intrinsic motivation and organizational commitment. Using a stepwise regression procedure, the contribution of the interaction term was evaluated by controlling for the contributions of intrinsic motivation, organizational commitment and OCBO at time one in. The change in $r^2$ indicates the percentage of variance attributable to the interaction term when that term enters the equation last. The significance of that change determines the significance of the contribution of the interaction term.

\begin{equation}
OCBO_{t2} = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 \text{OCBO}_{t1} + B_4 (\text{intrinsic motivation}_{t1} \times \text{organizational commitment}_{t1})
\end{equation}

The two rows under equation 4-5 in Table 8 give the results for this regression for supervisory OCBO ratings and self-report OCBO ratings. The model accounted for 62% $(p<.0001)$ of the variance in supervisor-rated OCBO at time two and 33% $(p<.0001)$ of the variance in self-report OCBO at
time two. For both the supervisory and self-report OCBO data the change in \( r^2 \) due to addition of the interaction term was not significant. The longitudinal analysis provided no support for Hypothesis 6.

Hypothesis 9 proposed no moderated relationship for OCBI with the independent variables.

**Hypothesis 9:** There is no interaction between intrinsic motivation and organizational commitment in their relationship with OCBI.

A longitudinal multiple regression equation with an interaction term, composed of the product of the two independent variables, was used to evaluate the hypothesis. Time two OCBI was regressed on organizational commitment at time one, intrinsic motivation at time one, OCBI at time one and an interaction term (product variable) of intrinsic motivation and organizational commitment. Using a stepwise regression procedure, the contribution of the interaction term was evaluated by controlling for the contributions of intrinsic motivation, organizational commitment and OCBI at time one in. The change in \( r^2 \) indicates the percentage of variance attributable to the interaction term when that term enters the equation last. The significance of that change determines the significance of the contribution of the interaction term.
\[ (4-6) \quad OCBI_t = B_1 \text{intrinsic motivation}_{t1} + B_2 \text{organizational commitment}_{t1} + B_3 \text{OCBI}_{t1} + B_4 (\text{intrinsic motivation}_{t1} \times \text{organizational commitment}_{t1}) \]

The two rows under equation 4-6 in Table 8 give the results for this regression for supervisory OCBI ratings and self-report OCBI ratings. The model accounted for 48\% (p<.0001) of the variance in supervisor-rated OCBI at time two and 45\% (p<.0001) of the variance in self-report OCBI at time two. For both the supervisory and the self report OCBI data the change in \( r^2 \) due to the addition of the interaction term was not significant. The longitudinal analysis supported Hypothesis 9. Proposing no relationship, however, capitalizes on the small number of cases and other statistical artifacts including the high probability of not finding significant interaction terms when using interval scales (Cronbach 1987, Russell & Bobko 1992).

The longitudinal data did not provide support for the hypotheses that proposed the existence of relationships between the OCB variables and intrinsic motivation and organizational commitment. Table 6 shows that the mean values of the OCB variables remained essentially unchanged from time one to time two. Although the study of change allows a cleaner analysis of the proposed relationships (by controlling for the relationship of OCB to itself over time) the lack of change in the OCB variables for this sample made
such models ineffective for evaluating the proposed relationships.

**Correlational Analyses**

Table 9 displays the intercorrelations among time one and time two global OCB, time one and time two intrinsic motivation and time one and time two organizational commitment. Table 10 shows the intercorrelations among time one and time two OCBO, time one and time two OCBI, time one and time two intrinsic motivation and time one and time two organizational commitment. The correlation coefficient is shown at the intersection of the two variables of interest with the level of significance of that correlation indicated in parentheses underneath.

These two tables provide further information regarding analysis of the results of equations 4-1 through 4-6. The correlations between time one and time two OCB variables show that it was not possible for another independent variable to contribute significantly to any of the longitudinal models. OCB at time one correlates .79 (p<.0001) with OCB at time two for the supervisory data and .63 (p<.0001) for the self report data. As a result intrinsic motivation and organizational commitment together accounted for none of the variance in time two OCB (equation 4-1) for the supervisory data and 1 percent (F=1.25 df=70
### Table 9

**Intercorrelations of Major Variables and Global OCB**

<table>
<thead>
<tr>
<th></th>
<th>OCB_{t1} (supervisor)</th>
<th>OCB_{t1} (self-report)</th>
<th>OC_{t1}</th>
<th>IM_{t1}</th>
<th>OCB_{t2} (supervisor)</th>
<th>OCB_{t2} (self-report)</th>
<th>OC_{t2}</th>
<th>IM_{t2}</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCB_{t1} (supervisor)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCB_{t1} (self-report)</td>
<td>.278 (.007)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC_{t1}</td>
<td>.377 (.0002)</td>
<td>.398 (.0001)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IM_{t1}</td>
<td>.194 (.061)</td>
<td>.282 (.003)</td>
<td>.501 (.0001)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCB_{t2} (supervisor)</td>
<td>.791 (.0001)</td>
<td>.264 (.016)</td>
<td>.204 (.062)</td>
<td>.059 (.594)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCB_{t2} (self-report)</td>
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OC - Organizational Commitment
IM - Intrinsic Motivation
## TABLE 10
INTERCORRELATIONS OF MAJOR VARIABLES AND OCB FACTORS

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OC - Organizational Commitment
IM - Intrinsic Motivation
p > .05) for the self-report data. OCBI at time one correlates .70 (p < .0001) with OCBI at time two for the supervisory data and .66 (p < .0001) for the self-report data. Both intrinsic motivation and organizational commitment therefore accounted for 1 percent (F = 2.0 df = 71 p > .05) of the variance in time two OCBI (equation 4-3) for the supervisory data and 2 percent (F = 2.22 df = 77 p > .05) for the self-report data. OCBO at time one correlated .78 (p < .0001) with OCBO at time two for the supervisory data and .55 (p < .0001) for the self-report data.

Intrinsic motivation and organizational commitment together accounted for none of the variance in time two OCBO (equation 4-2) for the supervisory data or for the self-report data. The insignificant amount of additional variance in the time two OCB variables that could be accounted for by intrinsic motivation and organizational commitment in the unmoderated longitudinal models (equations 4-1 to 4-3) did not allow the interaction term to add significant variance in the moderated longitudinal models (equations 4-3 to 4-6). As a result, all subsequent analyses use the panel data in static models to investigate the study hypotheses.

Hypotheses 1 and 2 proposed unmoderated positive relationships for (global) OCB with the independent variables. Table 9 reports the relevant correlations.
Hypothesis 1: There is a positive relationship between intrinsic motivation and OCB.

OCB at time one correlated .19 (p<.06) with intrinsic motivation at time one for the supervisory data and .28 (p<.003) for the self-report data. OCB at time two correlated .10 (p<.39) with intrinsic motivation at time two for the supervisory data and .16 (p<.14) for the self-report data. Hypothesis 1 was not supported by three of four correlations.

Hypothesis 2: There is a positive relationship between organizational commitment and OCB.

OCB at time one correlated .38 (p<.0002) with organizational commitment at time one for the supervisory data and .40 (p<.0001) for the self-report data. OCB at time two correlated .22 (p<.06) with organizational commitment at time two for the supervisory data and .36 (p<.0007) for the self-report data. Hypothesis 2 was supported by three out four (highly) significant correlations.

Hypotheses 4 and 5 proposed unmoderated positive relationships for OCBO with the independent variables. Table 10 reports the relevant correlations.

Hypothesis 4: There is a positive relationship between intrinsic motivation and OCBO.
OCBO at time one correlated .21 (p<.04) with intrinsic motivation at time one for the supervisory data and .31 (p<.001) for the self-report data. OCBO at time two correlated .02 (p<.91) with intrinsic motivation at time two for the supervisory data and .10 (p<.35) for the self-report data. Both time one correlations supported the hypothesis and neither time two correlation supported it. The number of subjects decreased by approximately 20% from time one to time two. The time two results, as extreme as they were, were unlikely to be simply due to a lack of power from small numbers. Hypothesis 4 was supported in half the cases.

Hypothesis 5: There is a positive relationship between organizational commitment and OCBO.

OCBO at time one correlated .34 (p<.0007) with organizational commitment at time one for the supervisory data and .44 (p<.0001) for the self-report data. OCBO at time two correlated .15 (p<.19) with organizational commitment at time two for the supervisory data and .27 (p<.01) for the self-report data. Hypothesis 5 was supported in three out of four cases.

Hypothesis 7 proposed an unmoderated positive relationship for OCBI with intrinsic motivation. Table 10 reports the relevant correlations.

Hypothesis 7: There is a positive relationship between intrinsic motivation and OCBI.
OCBI at time one correlated .01 (p<.34) with intrinsic motivation at time one for the supervisory data and .14 (p<.15) for the self-report data. OCBI at time two correlated .20 (p<.08) with intrinsic motivation at time two for the supervisory data and .15 (p<.16) for the self-report data. None of the correlations were significant. Hypothesis 7 was not supported.

Hypothesis 8 proposed no relationship for OCBI with organizational commitment. Table 10 reports the relevant correlations.

Hypothesis 8: There is no relationship between organizational commitment and OCBI.

OCBI at time one correlated .32 (p<.002) with organizational commitment at time one for the supervisory data and .18 (p<.06) for the self-report data. OCBI at time two correlated .26 (p<.02) with organizational commitment at time two for the supervisory data and .29 (p<.005) for the self-report data. All but one of the correlations was significant. The one that was not significant was marginally significant. Hypothesis 8 was not supported by three of four correlations.

Hypothesis 10 proposed a difference in the relationships of OCBO and OCBI with intrinsic motivation. Table 10 reports the relevant correlations.
Hypothesis 10: There is a difference in relative strength between the relationship of intrinsic motivation with OCBO and the relationship of intrinsic motivation with OCBI.

The correlation coefficients for OCBO with intrinsic motivation and OCBI with intrinsic motivation were not determined on independent samples. A t-test (df=n-3) using a calculation for the t-statistic that takes into account the correlation between OCBO and OCBI was used for the analysis (Cohen & Cohen 1983).

For the time one supervisory data, the correlations of intrinsic motivation with OCBO (.21) and with OCBI (.01) were not significantly different (t=1.91 df=92). For the time one self-report data, the correlations of intrinsic motivation with OCBO (.31) and with OCBI (.14) were not significantly different (t=1.36 df=106). For the time two supervisory data, the correlations of intrinsic motivation with OCBO (.01) and with OCBI (.20) were not significantly different (t=-1.83 df=75). For the time two self-report data, the correlations of intrinsic motivation with OCBO (.10) and with OCBI (.15) were not significantly different (t=-.40 df=81). Hypothesis 10 was not supported.

**Static Multiple Regression Analyses**

The results of the multiple regression analyses utilizing the cross-sectional data (analyses do not use data
from different times in the same model) collected in this research are presented in Tables 11 and 12. Table 11 displays $r^2$, standardized betas and t-statistics for the static regression equations without interaction terms. Table 12 shows $r^2$ for the static regression equations with interaction terms (moderated regression equations), the change in $r^2$ due to addition of the interaction term and the F-statistics related to the addition of the interaction term.

Unmoderated Static Regression

Hypotheses 1 and 2 proposed unmoderated positive relationships for (global) OCB with the independent variables.

Hypothesis 1: There is a positive relationship between intrinsic motivation and OCB.

Hypothesis 2: There is a positive relationship between organizational commitment and OCB.

One multiple regression equation with the four different sets of data was used to evaluate both hypotheses. OCB at time x was regressed on same time organizational commitment and same time intrinsic motivation. The significance of $B_1$ indicates the relationship between OCB and intrinsic motivation controlling for organizational commitment. The significance of $B_2$ indicates the relationship between OCB
and organizational commitment controlling for intrinsic motivation.

\[ OCB_{tX} = B_1 \text{intrinsic motivation}_{tX} + B_2 \text{organizational commitment}_{tX} \]

The first row under equation 4-7 in Table 11 gives the results for this regression for supervisory OCB ratings at time one and time two. The second row under equation 4-7 shows the results for self-report OCB ratings at time one and time two. At time one the model accounted for 15\% (p<.0005) of the variance in supervisor-rated OCB and 17\% (p<.0001) of the variance in self-report OCB. Neither \(B_1\) was significant and \(B_2\) was significant for both supervisory and self-report data. At time two the model accounts for 6\% (p<.11) of the variance in supervisor-rated OCB and 13\% (p<.004) of the variance in self-report OCB. Neither \(B_1\) was significant and \(B_2\) was significant for the self-report data. Hypothesis 1 was not supported. Hypothesis 2 was supported in three out of four cases.

Hypotheses 4 and 5 proposed unmoderated positive relationships for OCBO with the independent variables.

Hypothesis 4: There is a positive relationship between intrinsic motivation and OCBO.

Hypothesis 5: There is a positive relationship between organizational commitment and OCBO.
| (4-7) $OCB_{tx} = IM_{tx} + OC_{tx}$ | \( r^2_{t1} = .15 \) | \( n=94 \) \( p=.0005 \) | .26 | 3.52 | .0007 | .017 | .08 | .93 |
| (4-8) $OCBO_{tx} = IM_{tx} + OC_{tx}$ | \( r^2_{t1} = .12 \) | \( n=95 \) \( p=.002 \) | .15 | 2.88 | .005 | .08 | .53 | .60 |
| (4-9) $OCBI_{tx} = IM_{tx} + OC_{tx}$ | \( r^2_{t1} = .11 \) | \( n=95 \) \( p=.004 \) | .11 | 3.29 | .001 | -.06 | -.71 | .48 |
| OC - Organizational Commitment | | | | | | | | |
| IM - Intrinsic Motivation | | | | | | | | |
One multiple regression equation with the four different sets of data was used to evaluate both hypotheses. OCBO at time \( x \) was regressed on same time organizational commitment and same time intrinsic motivation. The significance of \( B_1 \) indicates the relationship between OCBO and intrinsic motivation controlling for organizational commitment. The significance of \( B_2 \) indicates the relationship between OCBO and organizational commitment controlling for intrinsic motivation.

\[
OCBO_{tx} = B_1 \text{intrinsic motivation}_{tx} + B_2 \text{organizational commitment}_{tx}
\]

The first row under equation 4-8 in Table 11 gives the results for this regression for supervisory OCBO ratings at time one and time two. The second row under equation 4-8 shows the results for self-report OCBO ratings at time one and time two. At time one the model accounted for 12\% (\( p < .002 \)) of the variance in supervisor-rated OCBO and 21\% (\( p < .0001 \)) of the variance in self-report OCBO. Neither \( B_1 \) was significant and \( B_2 \) was significant for both supervisory and self-report data. At time two the model accounts for 3\% (\( p < .29 \)) of the variance in supervisor-rated OCBO and 8\% (\( p < .04 \)) of the variance in self-report OCBO. Neither \( B_1 \) was significant and \( B_2 \) was significant for the self-report data. Hypothesis 4 was not supported. Hypothesis 5 was supported in three out of four cases.
Hypothesis 7 proposed an unmoderated positive relationship for OCBI with intrinsic motivation. Hypothesis 8 proposed no relationship between OCBI and organizational commitment.

Hypothesis 7: There is a positive relationship between intrinsic motivation and OCBI.

Hypothesis 8: There is no relationship between organizational commitment and OCBI.

One multiple regression equation was used to evaluate both hypotheses. OCBI at time x was regressed on same time organizational commitment and same time intrinsic motivation. The significance of $B_1$ indicates the relationship between OCBI and intrinsic motivation controlling for organizational commitment. The significance of $B_2$ indicates the relationship between OCBI and organizational commitment controlling for intrinsic motivation.

\[(4-9) \quad \text{OCBI}_tx = B_1 \text{intrinsic motivation}_tx + B_2 \text{organizational commitment}_tx\]

The first row under equation 4-9 in Table 11 gives the results for this regression for supervisory OCBI ratings at time one and time two. The second row under equation 4-9 shows the results for self-report OCBI ratings at time one and time two. At time one the model accounted for 11% ($p<.004$) of the variance in supervisor-rated OCBI and 4%
(p<.13) of the variance in self-report OCBI. Neither $B_1$ was significant and $B_2$ was significant for the supervisory data. At time two the model accounts for 9% (p<.03) of the variance in supervisor-rated OCBI and 9% (p<.02) of the variance in self-report OCBI. Neither $B_1$ was significant and $B_2$ was significant for the self-report and supervisory data. Hypothesis 7 was not supported. Hypothesis 8 was supported in one out four cases. The probability of finding no relationship is higher simply because of the small number of cases and other statistical artifacts.

**Moderated Static Regression**

Hypothesis 3 proposed a moderated positive relationship for OCB with the independent variables.

**Hypothesis 3:** There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCB

A multiple regression equation with an interaction term, composed of the product of the two independent variables, was used to evaluate the hypothesis. OCB at time $x$ was regressed on same time organizational commitment, same time intrinsic motivation and an interaction term (product variable) of intrinsic motivation and organizational commitment. Using a stepwise regression procedure, the contribution of the interaction term was evaluated by controlling for the contributions of intrinsic motivation
and organizational commitment. The change in $r^2$ indicates the percentage of variance attributable to the interaction term when that term enters the equation last. The significance of that change determines the significance of the contribution of the interaction term.

\begin{equation}
\text{OCB}_t = B_1 \text{intrinsic motivation}_t + B_2 \text{organizational commitment}_t + B_3 (\text{intrinsic motivation}_t \times \text{organizational commitment}_t)
\end{equation}

The first row under equation 4-10 in Table 12 gives the results for this regression for supervisory OCB ratings at time one and time two. The second row under equation 4-12 shows the results for self-report OCB ratings at time one and time two. The model accounted for 17% ($p<.0008$) of the variance in supervisory and 17% ($p<.0001$) of the variance in self-report OCB at time one. The model accounted for 6% ($p<.22$) of the variance in supervisory and 6% ($p<.007$) of the variance in self-report OCB at time two. The change in $r^2$ due to addition of the interaction term was not significant in any of the four cases. Hypothesis 3 is not supported.

Hypothesis 6 proposed a moderated positive relationship for OCBO with the independent variables.

Hypothesis 6: There is an interaction between intrinsic motivation and organizational commitment in their relationship with OCBO.
<table>
<thead>
<tr>
<th>Regression Model</th>
<th>Time One (IM x OC)</th>
<th>Time Two (IM x OC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\Delta r^2$</td>
<td>F</td>
</tr>
<tr>
<td>(4-10) OCB tx = IM tx + OC tx + (IM tx x OC tx)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCB (supervisor)</td>
<td>model $r^2_{t1} = .17$</td>
<td>.02</td>
</tr>
<tr>
<td>OCB (self-report)</td>
<td>model $r^2_{t1} = .17$</td>
<td>.02</td>
</tr>
<tr>
<td>(4-11) OCBO tx = IM tx + OC tx + (IM tx x OC tx)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCBO (supervisor)</td>
<td>model $r^2_{t1} = .14$</td>
<td>.00</td>
</tr>
<tr>
<td>OCBO (self-report)</td>
<td>model $r^2_{t1} = .21$</td>
<td>.00</td>
</tr>
<tr>
<td>(4-12) OCBI tx = IM tx + OC tx + (IM tx x OC tx)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCBI (supervisor)</td>
<td>model $r^2_{t1} = .12$</td>
<td>.01</td>
</tr>
<tr>
<td>OCBI (self-report)</td>
<td>model $r^2_{t1} = .10$</td>
<td>.07</td>
</tr>
</tbody>
</table>

OC - Organizational Commitment
IM - Intrinsic Motivation
A multiple regression equation with an interaction term, composed of the product of the two independent variables, was used to evaluate the hypothesis. OCBO at time \( x \) was regressed on same time organizational commitment, same time intrinsic motivation and an interaction term (product variable) of intrinsic motivation and organizational commitment. Using a stepwise regression procedure, the contribution of the interaction term was evaluated by controlling for the contributions of intrinsic motivation and organizational commitment. The change in \( r^2 \) indicates the percentage of variance attributable to the interaction term when that term enters the equation last. The significance of that change determines the significance of the contribution of the interaction term.

\[
(4-11) \quad OCBO_{tx} = B_1 \text{intrinsic motivation}_{tx} + B_2 \text{organizational commitment}_{tx} + B_3 (\text{intrinsic motivation}_{tx} \times \text{organizational commitment}_{tx})
\]

The first row under equation 4-11 in Table 12 gives the results for this regression for supervisory OCBO ratings at time one and time two. The second row under equation 4-11 shows the results for self-report OCBO ratings at time one and time two. The model accounted for 14\% (\( p<.003 \)) of the variance in supervisory and 21\% (\( p<.0001 \)) of the variance in self-report OCBO at time one. The model accounted for 8\% (\( p<.09 \)) of the variance in supervisory and 8\% (\( p<.09 \)) of the
variance in self-report OCBO at time two. The change in $r^2$ due to addition of the interaction term was not significant in any of the four cases. Hypothesis 6 is not supported.

Hypothesis 9 proposed no moderated relationship for OCBI with the independent variables.

Hypothesis 9: There is no interaction between intrinsic motivation and organizational commitment in their relationship with OCBI.

A multiple regression equation with an interaction term, composed of the product of the two independent variables, was used to evaluate the hypothesis. OCBI at time x was regressed on same time organizational commitment, same time intrinsic motivation and an interaction term (product variable) of intrinsic motivation and organizational commitment. Using a stepwise regression procedure, the contribution of the interaction term was evaluated by controlling for the contributions of intrinsic motivation and organizational commitment. The change in $r^2$ indicates the percentage of variance attributable to the interaction term when that term enters the equation last. The significance of that change determines the significance of the contribution of the interaction term.

\[
(4-12) \quad OCBI_{tx} = B_1 \text{intrinsic motivation}_{tx} + B_2 \text{organizational commitment}_{tx} + B_3 (\text{intrinsic motivation}_{tx} \times \text{organizational commitment}_{tx})
\]
The first row under equation 4-12 in Table 12 gives the results for this regression for supervisory OCBI ratings at time one and time two. The second row under equation 4-12 shows the results for self-report OCBI ratings at time one and time two. The model accounted for 12% (p<.008) of the variance in supervisory and 10% (p<.006) of the variance in self-report OCBI at time one. The model accounted for 10% (p<.05) of the variance in supervisory and 11% (p<.02) of the variance in self-report OCBI at time two. The change in $r^2$ due to addition of the interaction term was significant for the self-report time one data and insignificant in the other three cases. Hypothesis 9 is supported in three of four cases. Proposing no relationship, however, capitalizes on the small number of cases and other statistical artifacts including the high probability of not finding significant interaction terms when using interval scales (Cronbach 1987, Russell & Bobko 1992).

Static Regression With Group Variable

Membership in the quality circle trial group or in the comparison group was the only demographic variable that was anticipated to be relevant to the data analysis. Because of the lack of change in the OCB variables that made the longitudinal regression analyses ineffective this difference was not explored using the longitudinal multiple regression models. In the static regression models support for an
intrinsic motivation and organizational commitment interaction term was found in only one of twelve cases, therefore, a group membership difference was not explored for the static moderated regression models. Group membership was entered as a dummy variable in the unmoderated static regression models. Subjects' group membership was entered for those included in the data for the particular time and type of data (supervisory or self-report). Using a stepwise regression procedure, the contribution of the group membership variable was evaluated by controlling for the contributions of intrinsic motivation and organizational commitment. The change in $r^2$ indicates the percentage of variance in the OCB variable attributable to the group membership term when that term enters the equation last. The significance of that change determines the significance of the contribution of the group membership variable. Table 13 shows the results of those analyses.

The equations that were evaluated for both time one and time two supervisory and self-report data were the following:

(4-13) $OCB_{tx} = IM_{tx} + OC_{tx} + \text{Group Membership}_{tx}$

(4-14) $OCBO_{tx} = IM_{tx} + OC_{tx} + \text{Group Membership}_{tx}$

(4-15) $OCBI_{tx} = IM_{tx} + OC_{tx} + \text{Group Membership}_{tx}$
### TABLE 13
\textbf{CHANGE IN R^2 AND F-STATISTICS FOR STATIC REGRESSION MODELS WITH GROUP VARIABLE}

<table>
<thead>
<tr>
<th>Time One Group</th>
<th>Time Two Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \Delta r^2 )</td>
<td>( F )</td>
</tr>
</tbody>
</table>

\( (4-13) \quad \text{OCB}_{tx} = \text{IM}_{tx} + \text{OC}_{tx} + \text{Group Membership}_{tx} \)

<table>
<thead>
<tr>
<th>Group</th>
<th>( r^2 )</th>
<th>Sample Size</th>
<th>( F )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCB (supervisor)</td>
<td>( r^2_{t1} = .19 )</td>
<td>n = 94</td>
<td>p = .0003</td>
<td>.04</td>
</tr>
<tr>
<td>OCB (self-report)</td>
<td>( r^2_{t1} = .17 )</td>
<td>n = 108</td>
<td>p = .0002</td>
<td>0</td>
</tr>
</tbody>
</table>

\( (4-14) \quad \text{OCBO}_{tx} = \text{IM}_{tx} + \text{OC}_{tx} + \text{Group Membership}_{tx} \)

<table>
<thead>
<tr>
<th>Group</th>
<th>( r^2 )</th>
<th>Sample Size</th>
<th>( F )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCBO (supervisor)</td>
<td>( r^2_{t1} = .15 )</td>
<td>n = 95</td>
<td>p = .002</td>
<td>.03</td>
</tr>
<tr>
<td>OCBO (self-report)</td>
<td>( r^2_{t1} = .21 )</td>
<td>n = 109</td>
<td>p = .0001</td>
<td>0</td>
</tr>
</tbody>
</table>

\( (4-15) \quad \text{OCBI}_{tx} = \text{IM}_{tx} + \text{OC}_{tx} + \text{Group Membership}_{tx} \)

<table>
<thead>
<tr>
<th>Group</th>
<th>( r^2 )</th>
<th>Sample Size</th>
<th>( F )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCBI (supervisor)</td>
<td>( r^2_{t1} = .13 )</td>
<td>n = 95</td>
<td>p = .005</td>
<td>.02</td>
</tr>
<tr>
<td>OCBI (self-report)</td>
<td>( r^2_{t1} = .04 )</td>
<td>n = 110</td>
<td>p = .24</td>
<td>0</td>
</tr>
</tbody>
</table>

**OC** - Organizational Commitment  
**IM** - Intrinsic Motivation
In none of the twelve cases did group membership add significantly to the variance in the OCB variable. Consequently, further analysis based on the group membership difference was not undertaken.
CHAPTER V
DISCUSSION

Employee participation is regularly acclaimed as the road to a more committed, innovative and self-motivated workforce (Lawler 1986, Walton 1991, Lawler et.al. 1992). The research objective for this study was to examine whether there is more than an anecdotal relationship among committed employees (organizational commitment), spontaneous and innovative extrarole behavior (OCB) and self-motivated employees (intrinsic motivation). Ten hypotheses were offered to explore the research question: Is an employee’s level of intrinsic motivation related to the amount of OCB displayed and how is that relationship affected by the employee’s level of organizational commitment?

Additionally, this study contributes to the current understanding of OCB by:

(1) exploring the factorial structure of OCB and the relationships of those factors to intrinsic motivation and organizational commitment;

(2) exploring the proposed relationships between OCB, OCB factors, intrinsic motivation and organizational commitment longitudinally; and
(3) exploring the OCB and OCB factor relationships by analyzing OCB and OCB factor data from two different sources (supervisor and self-report).

Study Limitations

This study utilized a convenience sample of administrative and clerical employees from a large Midwest (U.S.) insurance company. The sample was young (mean age 30, standard deviation seven years) and two-thirds female. Average job tenure was only one and a half years (standard deviation 1.5 years) but average organization tenure was nearly five years (standard deviation four years). While convenience samples automatically limit the generalizability of the study results, these demographics are not atypical of units of large service companies. Additionally, the sample is arguably more comparable to most employee populations than several previous OCB studies (eg., O'Reilly and Chatman 1986, students; Farh et.al. 1990, Taiwanese government workers; Schaubroeck and Ganster 1991, student volunteers).

A researcher is always faced with two mutually incompatible goals when attempting to add to the understanding of a subject area. Using a different set of measures to extend the OCB line of research could have added something entirely new. Alternatively, extending the line of research through replication of, or similarity to, previous studies provided the opportunity to find out if "we really know what we know". Much of the previous OCB
research has utilized totally new measures of OCB (eg. Motowidlo 1984, Puffer 1987, O’Reilly & Chatman 1986, Eisenberger et.al. 1990). Adding something entirely new to a field is an attractive venture. Attempting to keep some consistency of measurement with previous studies, however, can help refine the current understanding of OCB without increasing the probability that it is measurement rather than substance that is responsible for the results (McGrath et.al. 1981). By choosing to utilize the most commonly used instruments available for measuring the variables of interest, including the one most frequently used for OCB (Smith et.al. 1983), this study did not aid in the development of OCB measurement. Because the Smith et.al. scale (1983) has received a good deal of scrutiny and criticism (Dalton & Cosier 1988) this study is open to the criticism that measurement of OCB was not as precise as it might have been.

It was expected that OCB would be best operationalized as OCBO (OCB directed at the organization in general) and OCBI (OCB directed at individuals within the work context) (Williams 1988). The expectation was all the stronger because the research utilized the Smith et.al. scale (1983), which had produced these two factors in the past (Smith et.al. 1983, Farh et.al. 1990). The strength of reexamining these two dimensions created a built-in limitation. Other
possible dimensions that may have added to understanding the relationships among intrinsic motivation, organizational commitment and OCB were not explored. Examination of any differential relationships of OCB factors consequently did not extend to other possible dimensions of OCB.

This study suffers from two problems that are common in social science research but nonetheless limit analysis and interpretation of the data. Those obstacles are small sample size and common method variance. Sample sizes of 117 (time one) and 97 (time two) do not provide the kind of power that insures finding small but significant effects. Because scales for self-report OCB, organizational commitment and intrinsic motivation were all part of the same instrument, common method variance is a rival explanation for any effects found. Common method variance increases the correlation between dependent and independent variables and between the independent variables. The correlations between organizational commitment and intrinsic motivation (.50 at time one, .32 at time two) in this study were larger than would be expected from theory. The constructs are not similar enough to display a .50 convergent validity; common method variance would seem to have increased any existing multicollinearity. Correlation between the independent variables (multicollinearity) reduces the reliability of the regression coefficients and
tends to inflate the $r^2$ in multiple regression. Unfortunately, small sample sizes and common method variance do not simply offset each other. The statistical implications of each problem need to be remembered when considering the study results.

Even if all the other limitations outlined above were somehow not true of this study, like other OCB studies, only a limited number of factors of the many that could possibly be associated with OCB performance were investigated. The variables examined in this study remain to be integrated with other variables that have been shown to be, or are expected to be, related to OCB.

**Psychometric Properties of Measures**

**Dependent Variables**

A two factor representation of OCB from the Smith et al. scale (1983) was verified by all four groups of data. The expected OCBO/OCBI factor solution for all four analyses yielded approximately the same results for each item in the scale. Items 2, 9 and 15 failed to load on either factor in at least two of the four cases. These three items are related to attendance and punctuality. The researcher originally tried to gather actual attendance data for the subjects but was told such records either were not kept or were unreliable. After reviewing the attendance records
that were available, the researcher agreed that the records were incomplete at best and probably also inaccurate. The discussion regarding attendance records fits with the factor analyses results. It would seem that "time keeping" was not consequential in the subjects' culture. The failure of "time keeping" type items to load clearly on either OCB factor was thus in accord with the particular environment.

The pattern across the four sets of data was very strong, however, the individual factor analyses have some interesting differences. In all four cases the two factor solution would still be the best representation of the scale. For self-report OCB at time one four items did not load and at time two three items did not load (two of seven were the same item). Of those items that did not load, five of seven were OCBO items (one of the OCBI items was the nebulous item 15). At time one the supervisory OCB scale had one item not load and at time two the supervisory OCB scale had two items not load (two of three were the same item). All three items that did not load were OCBO items. Although "time-keeping" not being salient accounts for a number of the items that did not load, it is noteworthy that OCBO items were the ones that did not readily load. It may be that some OCBO items were seen as in-role behavior items (by employees in particular). Factors for both of the self-report analyses (81.7, 76.3) accounted for less cumulative
variance than the factors in the supervisory analyses (83.9 and 88.3). Even with the items that did not load, each of the self-report factor analyses still accounted for substantially more cumulative variance than in either the Smith et.al. (1983) (54.1) or Farh et.al. (1990) (51.3) analyses. The cumulative variance results increased confidence that the OCBO/OCBI factors substantially accounted for overall OCB for this sample and research site.

The reliabilities shown for the OCB scale, the OCBO subscale and the OCBI subscale were consistent with the factor analyses results. The Cronbach alphas for the OCB scale (Smith et.al. 1983) and subscales were always stronger for the supervisory data than for the self-report data. The lowest alpha values were for self-report OCBO (both time one and two). The supervisory OCBO coefficient alphas (.87 and .88) compared favorably with those of Smith et.al. (1983) (.81), Organ and Konovsky (1989) (.81) and Farh et.al. (1990) (.90) that were also based on supervisory data. The supervisory OCBI coefficient alphas (.79 and .83) were likewise on the same order as those reported by Smith et.al. (1983) (.91), Organ and Konovsky (1989) (.89) and Farh et.al. (1990) (.82). The self-report coefficient alphas for OCB (.70 and .75), OCBO (.62 and .65) and OCBI (.67 and .77) were substantially smaller than the supervisory values. It is not surprising then that the correlations between self-
report and supervisory OCB variables were low (0.26, 0.34, 0.30, 0.30, 0.26 and 0.28)), yet not as low as the correlation found by Williams (1988) (0.16). Unless supervisory and self-report measures of OCB are combined it is necessary to have some basis on which to judge the relative merits of each. By virtue of their higher reliability the results from the supervisory data seem stronger than the ones from the self-report data.

The self-reports may be less reliable because employees are less clear than supervisors about what constitutes extrarole rather than in-role behavior. In addition, the self-report data also exhibit a restriction of range (smaller standard deviations) in comparison to the supervisory data for both global OCB and OCBO but not OCBI. Self reports of performance typically suffer from a defensiveness bias -- because employees are defensive they do not report extreme scores for themselves (Harris & Schaubroeck 1988). It may be that OCBI does not display this tendency because OCB toward individuals seems more "truly" discretionary to employees and there is consequently less defensiveness. The reliabilities for the self-report OCBI subscale are higher than for the OCBO subscale. Conversely, the reliabilities for the supervisory OCBO subscale are higher than for the OCBI subscale. This makes intuitive sense in that employees are more aware of their
own helping behavior towards other individuals and supervisors are probably more aware of the broader behaviors typical of OCB.

Though it is true that the results from the supervisory data need to be given more weight because of their higher reliability it is also true that supervisory ratings of OCB tell only part of the story. Because of the somewhat indeterminate nature of OCB (Organ 1988a), and the retrospective interpretation of what passes for OCB, it makes sense that ratings from supervisors are partly (or largely) actions deliberately aimed at supervisory attention (Organ & Konovsky 1989). Such instrumental motivation would take the behavior outside the definition of OCB and would be a source of contamination in supervisor-rated OCB. Additionally, the reliabilities of supervisor-rated OCB may be inflated by halo error. Supervisors may have answered each item on the scale on the basis of a general impression of the employee as a "good soldier" or "bad soldier" (Organ 1988a). Support for this view comes from a comparison of supervisory and self-report correlations of same time OCBO with same time OCBI. Supervisory correlations of OCBO with OCBI (.47 and .57) were noticeably higher than the self-report correlations of OCBO with OCBI (.29 and .35). Employees were apparently making more of a distinction between the two factors than were the supervisors. In spite
of lower reliability, therefore, self-report OCB data made a meaningful contribution to the examination of the OCB relationships.

**Independent Variables**

Organizational commitment, as measured by the OCQ (Mowday, Porter & Steers 1979), was found to be unidimensional by the factor analyses for both time one and time two. This one factor representation agreed with the findings of Williams and Anderson (1991) who used a different measure of organizational commitment. The coefficient alphas for the OCQ scale in this study (.88 and .90) were virtually identical to those reported elsewhere (Mowday et.al. 1979, Angle & Perry 1986, Folger & Konovsky 1989). The high reliabilities of both the OCQ and the supervisory OCB scale and subscales for this sample increased the ability to find significant relationships.

Coefficient alphas (.72 and .78) for the six item Internal Work Motivation Scale (Hackman & Oldham 1975) were similar to those reported elsewhere (Hackman & Oldham 1976, Kim & Schuler 1979, Pierce et.al. 1979). The scale exhibited adequate reliability for this sample such that the results were not suspect based on the reliability of the intrinsic motivation measure.
Longitudinal Regression Analyses

Two general propositions guided the current research:

(1) The degree to which an employee is intrinsically motivated will be related to the amount of OCB or OCBO and OCBI in which that employee engages.

(2) An employee's level of organizational commitment will differentially affect the relationship between intrinsic motivation and OCB, OCBO and OCBI.

It was envisioned that the use of longitudinal data in this study would contribute to the understanding of OCB by providing a stronger test of the proposed relationships. OCB research has been characterized by cross-sectional data. Bateman and Organ (1983) had provided the only longitudinal study of OCB when they examined the relationship between job satisfaction and global OCB. In addition to not being able to discern a single causal direction, the test-retest reliability of the OCB measure (.80) made it difficult for another variable to add significantly to the explanation of OCB in the Bateman and Organ (1983) study. Such a high test-retest reliability indicates that either changes in OCB or perceptions of changes in OCB happen more slowly than the six-week time lag that Bateman and Organ (1983) used. The increased time span of this study to four and one-half months was intended to be sufficiently long to make functional relationships discernable.
The test-retest reliabilities (intercorrelations between time one and time two same OCB variables) exhibited in this study for the supervisory data were similar to that in the Bateman and Organ (1983) study. The test-retest reliabilities for the self-report data were lower but still relatively high. The supervisory data produced test-retest reliabilities of .79 for OCB, .70 for OCBI and .78 for OCBO. Self-report data produced test-retest reliabilities of .63 for OCB, .66 for OCBI and .55 for OCBO. The means and standard deviations for the self-report data remained virtually unchanged from time one to time two. The test-retest reliability values for the self-report data were likely to have been attenuated by the lower reliabilities exhibited by the self-report scales and the smaller variation in the self-report OCB data.

Examining the change a variable makes over time allows the partialling out of the contribution of the independent variables to that change (Cohen & Cohen 1983). Regressing the time two OCB variable on intrinsic motivation, organizational commitment and the OCB variable at time one controlled for the effect of the OCB variable to itself over time. Using the longitudinal data in this manner, however, relied upon actual change over the four and one-half month period. The lack of change made OCB at time one the best predictor of OCB at time two. As with the Bateman and Organ
study (1983), the lack of change could have been due to OCB being more dispositional than it is believed to be (Organ 1990) or could be due to the time period being insufficiently long for changes in OCB to "register" with the supervisor or the self. The lack of change in the OCB variables for this sample rendered the longitudinal models ineffective to test the proposed relationships.

Relationships With Intrinsic Motivation

Support for relationships between the OCB variables and intrinsic motivation was weak. Three of twelve OCB variable correlations with intrinsic motivation were significant -- self-report OCB data at time one produced a correlation of .28 (p<.003), supervisory OCBO data at time one produced .21 (p<.004) and self-report OCBO at time one produced .31 (p<.001). The self-report correlations may be due in large part to common method variance. There were no significant correlations between OCBI and intrinsic motivation. None of the regression coefficients for intrinsic motivation in the static multiple regression analyses were significant. Intrinsic motivation did not add significantly to the variance of any of the OCB variables in the static regression models.
Theoretical Discussion

One of the main reasons intrinsic motivation and OCB were expected to be positively related was the match between the definition of OCB as "behavior ... that is ... not directly or explicitly recognized by the formal reward system" (Organ 1988a) and the definition of intrinsically motivated behaviors as "those done for their own sake and not because they lead to extrinsic rewards" (Deci 1975). With this in mind, it is not immediately apparent why the study results provided virtually no support for the relationship. Intrinsic motivation can be to perform in-role or extrarole activity but by definition motivation to undertake activities for extrinsic rewards cannot result in OCB. Intrinsic and extrinsic motivation are on a continuum with each other rather than being exclusive of each other (deCharms 1968). In-role or extrarole behavior is, therefore, to some degree intrinsically and to some degree extrinsically motivated for any given individual.

Because perceptions of fairness relate to extrinsic outcomes from the job, the positive relationship between those perceptions and OCB (Organ & Konovsky 1989, Moorman 1991) helps account for the effect of extrinsic motivation on OCB. As any behavior is more or less extrinsically motivated, Organ (1990) has speculated that intrinsic outcomes may make an employee less likely to dwell on unfair
treatment (extrinsic outcomes) that would otherwise result in less OCB. This view is supported by the research that indicates when behavior is insufficiently justified by the available extrinsic rewards then intrinsic motivation increases (Pittman & Heller 1987). Alternatively, it could be the case that an employee would perform in-role or extrarole activities without the extrinsic rewards and just happens to be in a job that provides those rewards. It is theoretically unlikely that intrinsic motivation is not related to OCB when extrinsic motivation (via fairness perceptions) has been shown to be related to OCB. Measuring fairness perceptions along with intrinsic motivation may be necessary to the examination of the relationship between OCB and intrinsic motivation.

The essence of intrinsic motivation is feeling competent and self-determining (Deci 1975) and individuals can experience feelings of competence by performing in-role or extrarole activities. It seems reasonable to expect that an individual can experience competence without feelings of self-determination (control) but that an individual cannot experience feelings of control without experiencing competence. People must feel sufficiently competent to execute the behaviors then they experience personal causation (Deci & Ryan 1987). Consequently, any discussion
of the results regarding intrinsic motivation must begin with examining the role of competence.

Findings that in-role performance is not significantly related to OCB (Puffer 1987) suggest some possibilities regarding competence and intrinsic motivation. It would seem that level of OCB exhibited could correspond to in-role performance or could be used to compensate for in-role performance. A person who does not feel competent to perform in-role behaviors may attempt to experience competence by increasing OCB -- which has a negligible ability component (Organ 1988a). One who experiences feelings of competence from in-role activity may, on the other hand, have all needs for feeling competent met without performing extrarole activities or make seek additional opportunities (through exhibiting OCB) to display competence. Analyzing the possibilities at the factor level provides more clarity with regard to the functioning of in-role competence.

OCBO represents hypervigilant attendance, punctuality and other conscientious actions (such as not spending time in idle conversation) that have even less of an ability component than OCBI -- OCBI involves helping others with their work. If lack of in-role competence were to be compensated for it seems most likely that OCBO would be the factor to be increased. Exhibiting high OCBO may, however,
relate to feelings of incompetence to complete in-role activities in the normal workday rather than to intrinsic motivation to continue working without additional rewards. There is evidence that those who view themselves through the (critical) eyes of others are less intrinsically motivated because the disposition to "public self-consciousness" is tantamount to avoiding punishment or seeking approval (even if that is not objectively the case) (Plant & Ryan 1985). Such a condition is not the same as being intrinsically motivated. It may also be that exhibiting low-ability-required behaviors, such as OCBO, does not enhance feelings of competence.

Because personal security has been found to be positively related to extrarole prosocial behavior (Puffer 1987) and stress has been found to be negatively related to helping behavior (Organ 1988a) lack of in-role competence should not be compensated for by increasing OCBI. The mastery aspect of intrinsic motivation would seem to lead to the ability to be concerned about others that is prerequisite to altruistic action (OCBI). OCBI relates to helping others with their work. As such it is not likely that an individual who does not feel in-role competence would choose to increase OCBI to compensate. Those who exhibit high OCBI, and thereby experience feelings of competence from helping others, may seek such feelings from
in-role activity or may be more inclined to further escalate OCBI. The positive relationship found between cognitions regarding the intrinsic properties of the job and OCBI (Williams and Anderson 1990) suggest that feelings of competence will be sought from both types of behavior.

As opposed to feelings of competence, feelings of self-determination (control) seem more relevant to voluntary behavior (OCB) than to required (in-role) behavior. Choosing to perform discretionary activities for individuals or for the organization should increase feelings of self-determination. Perceived control regarding in-role activities would likely affect the availability of feelings of self-determination from in-role activities. If perceived control is high regarding in-role activities, for example because of a participative environment, all needs for control may be met. An individual's desire for control would impact whether control-seeking would be pursued outside of in-role activities (Deci & Ryan 1985). Where in-role performance is constrained by lack of tools and materials or machine pacing, OCB would provide an avenue to experience self-determination. It is nonetheless possible that in an environment where there is pressure to "go the extra mile" employees could feel more self-determining by performing only in-role activities.
The coexistence of all the foregoing possible relationships between intrinsic motivation and OCB apparently results in no systematic variance in the OCB variables attributable to intrinsic motivation, as such. Each attempted explanation also involves consideration of in-role behaviors, competence and self-determination. The studies regarding the effect of extrinsic rewards on intrinsic motivation provided inconsistent results when not directly measuring perceived competence and control (Fisher 1978, Arnold 1985, Rummel & Feinberg 1988). Explicating a relationship between intrinsic motivation and the OCB variables would then seem to be hampered because perceived competence and control were not measured with regard to either in-role or extrarole performance in this study.

Methodological Discussion

Williams and Anderson (1991) found cognitions regarding the intrinsic aspects of the job positively related to OCBI. All but one of the items in the intrinsic cognitions scale they used asked subjects to respond to whether their job provided "the chance" to try different things, tell others what to do, use own judgement, etc. This is in contrast to the items which comprise the Internal Work Motivation scale (Hackman & Oldham 1975) used in this study that asked whether the subjects felt good about doing their job well or felt badly about doing their job poorly. (See Appendix C
for the scale items.) The immediately apparent difference in the two scales is that the Williams and Anderson (1991) items are cognition-centered while the scale used in this study is affect-centered. The findings that OCB is more related to cognitions than affect (Organ & Konovsky 1989) could explain why this study found no OCB/intrinsic motivation relationship even though the Williams and Anderson (1991) study provides evidence of such a relationship.

The Williams and Anderson scale items are also more closely related to the task characteristics in the Hackman and Oldham (1975) job characteristics model. The five task characteristics in that model are task variety, task identity, task significance, autonomy and direct feedback. To access cognitions regarding the intrinsic part of the job (Williams & Anderson 1991) a Likert-type (1-5) scale was used to gauge how often (always to never) the subject's job provides the following opportunities: "Have chance to do different things" (task variety); "Have chance to be somebody", "Have chance to do things for other people", "Have chance to tell people what to do" (task significance); "Have chance try own methods", "Have freedom to use own judgement" (autonomy) and "Get a feeling of accomplishment" (direct feedback). Positive findings using the foregoing type of scale items are consistent with the findings of Fahr
et.al. (1990) and Pearce and Gregersen (1991) who found positive relationships with OCB based on the Hackman and Oldham (1975) model.

It is troublesome that three studies relied on the qualities of intrinsic motivation to explain their positive results (Fahr et.al. 1990, Pearce & Gregerson, Williams & Anderson 1991) yet the present study did not find a relationship when measuring intrinsic motivation itself. Theory suggests that enhanced task characteristics can reduce intrinsic motivation if the individual does not feel competent to perform the enhanced job. There is no ready justification for enhanced task characteristics without subsequent intrinsic motivation resulting in OCB. It is true, however, that items regarding task characteristics are more cognition than affect-centered. Measurement of cognitions of intrinsic motivation could reconcile the findings of this study with the reasoning and results of the previously mentioned studies. This is in line with the findings that participative management and job enrichment may be experienced as controlling, depending on the interpersonal context within which those approaches are implemented (Deci et.al. 1989).

The foregoing reasoning is in accord with the discussion concerning the measurement of (in-role and extrarole) perceptions of competence and self-determination.
Measurement of perceptions (cognitions) of competence and self-determination would appear to provide a more valid test of what this study proposed to examine in regard to intrinsic motivation. Finally, the models utilized in this study tested for the existence of a linear relationship between intrinsic motivation and OCB. A larger sample size that would allow separate analyses of different levels of intrinsic motivation could reveal a non-linear relationship that is not discernable from the data at hand.

**Relationships with Organizational Commitment**

Support for relationships between organizational commitment and the OCB variables was strong, including support for a relationship with OCBI that was not predicted. Eleven of twelve OCB variable correlations with organizational commitment were significant -- supervisory OCBO data at time two was the only nonsignificant correlation ($r=.15$). The correlations for time one OCBI are the only cases where the self-report correlation is not higher than the supervisory correlation. This pattern is most likely the result of common method variance. All of the regression coefficients for organizational commitment in the nine static multiple regression models that had a significant $r^2$ were themselves significant. Organizational commitment added significantly to the variance of any static
regression model that significantly explained variance in an OCB variable. The three situations where this was not the case showed no pattern: two were from time two, two were from supervisory data and each one was for a different OCB variable (OCB, OCBO and OCBI). The variance explained by the models for OCB and OCBO followed the same pattern as did the correlations -- the self-report data explained more variance than the supervisory data. Again, the situation is likely accounted for by common method variance. The pattern did not hold for the OCBI model. The supervisory data accounted for more variance in OCBI at both time one and time two.

*Theoretical Discussion*

Organizational commitment refers to an individual's internalization of organization goals and values. In a state of high organizational commitment a member identifies with organizational authority and hence a strict accounting of rewards and contributions is unnecessary (Etzioni 1961). Organizational commitment was expected to be related to OCB and OCBO because of its association with the willingness to exert exceptional effort on behalf of the organization without a strict accounting of rewards (Mowday et.al. 1982). Organizational commitment was not expected to be related to OCBI because of its exclusive emphasis on total organization welfare rather than on individuals within the organization.
A supplementary analysis was done to determine if there was a difference in relative strength between the relationships of OCBO with organizational commitment and OCBI with organizational commitment. Although organizational commitment accounted for less variance in the OCBI models than in the other models, there was no significant difference between the correlations of organizational commitment with and OCBO and OCBI (same time, same source).

There are several possible explanations for the strong positive relationship found between organizational commitment and OCBI. It may be that an employee who is perceived by the supervisor to exhibit OCBO tends to be perceived to exhibit OCBI. The correlations between supervisor-rated OCBO and OCBI were .47 and .57. Correlations between self-report OCBO and OCBI were much smaller (.27 and .35). It is also possible that people who perform OCBI may rationalize that they must be committed to the organization. The relationship between OCBI and organizational commitment could be due to a common source of variation -- job satisfaction. Smith et al. (1983) found job satisfaction related to OCBI but not to OCBO. Being altruistic on the job (OCBI) could very likely lead to job satisfaction and consequently to organizational commitment.

It might seem like those who perform OCBI could view their helping behavior as furthering the success of the
organization and be willing to exert extra effort without a specific reward. This seems less likely because of the consistent distinctiveness of the OCBO and OCBI factors in this study. The items that did not load in the factor analyses were OCBO (not OCBI) items. Measuring in-role behaviors might support the idea that individuals see the organization as the ultimate recipient of the helping behaviors if OCBO items were found to load with in-role behaviors.

Methodological Discussion

The patterns of results among the four sets of data for each OCB variable and organizational commitment were fairly consistent. Even though the four sets do not represent independent replications the pattern of the results provide an extra degree of comfort with the findings. The differences between the individual case results for the four groups of data do highlight a concern with this area of research. OCB studies have typically been correlational, have used one source of data and have often examined only global OCB relationships. In some cases in this study the difference between time one and time two regression results were dramatic. The variance in supervisory OCBO accounted for by the static model at time one was .12 (p<.002) and at time two was .03 (p<.29). The contribution of organizational commitment in the first case was significant
at .005. Some differences between supervisory and self-report results are equally as dramatic. The variance in time one supervisory OCBI accounted for by the static model was .11 (p<.004) while the model accounted for .04 (p<.13) of the time one self-report OCBI. The contribution of organizational commitment was significant at .001 in the first case. The results for global OCB and an OCB factor could likewise be quite different. The variance in supervisory OCB accounted for by the static model at time two was .06 (p<.11) while the variance in supervisory OCBI accounted for by the static model at time two was .09 (p<.03).

The foregoing demonstrates that without replication or incremental changes in OCB research it may be that "we don't really know what we know". If this research had been based on only one of the time periods and/or only one of the sources of OCB information the results and accompanying discussion of those results could have legitimately been quite different. As with the decision to use previously developed (if not perfect) scales, replication does not necessarily add anything new but does provide the opportunity to solidify and refine the understanding of OCB.
CHAPTER VI
CONCLUSIONS AND RECOMMENDATIONS

Following are a series of concluding comments and recommendations for OCB theory development and research. In an ideal state all the following recommendations would be implemented in a single study. With its competing and often contradictory considerations social science research is far from ideal in any case (McGrath et al. 1981). It is not anticipated that it would be practical or even desirable, in the real world, to include all of the following suggestions in a single study (if for no other reason than the length of the survey instrument could cause a testing effect). While future research should undoubtedly take in a broader range of factors the primary goal of the particular study should govern which of the succeeding recommendations are incorporated into the research.

Methodological Issues

Longitudinal Study of OCB

Attempting to perform a longitudinal study of the OCB relationships did not effectively test for the existence of the proposed relationships between OCB, OCB factors,
intrinsic motivation and organizational commitment. It did suggest an important question with regard to the nature of OCB that would not have been raised with only cross-sectional data nor could it be explored in such a static study. The OCB variables did not exhibit any change over the time period of the study in spite of using a substantially longer time period (nineteen weeks as compared to six weeks) than did the first longitudinal OCB study (Bateman and Organ 1983). The question raised is whether OCB is so stable as to be essentially dispositional. If OCB is that invariable then the implication for managing OCB in the workplace would be different than current thinking regarding OCB would suggest.

Such OCB stability should focus attention on identifying the components of the predisposition to exhibit OCB and on hiring individuals with that disposition rather than on workplace interventions such as employee participation or those aimed at impacting perceptions of fairness (Organ 1988b, Moorman 1991). There are good reasons for such interventions but if OCB is essentially dispositional then increasing the incidence of OCB is not one of them. Because OCB has been found so consistently to be related to job satisfaction (Bateman & Organ 1983, Smith et al. 1983, Motowidlo 1984, Williams & Anderson 1991) it may be that predisposition to perform OCB is related to the
dispositional aspects of job satisfaction (Staw & Ross 1985, Staw et.al. 1986). Further longitudinal research over a longer time period than in the current study is needed to evaluate this issue and provide the practical direction needed to manage OCB in the workplace. The importance of this issue to OCB research is also considerable. For example, if OCB were found to be largely dispositional the line of research regarding the relationship of cognitive evaluations and OCB (Organ & Konovsky 1989, Organ 1990, Williams & Anderson 1991) would be seriously undercut.

**Measurement of Performance**

In order for research regarding OCB to be valid, those who are rating OCB must be able to reliably distinguish between in-role performance and OCB. There have only been three studies that included both in-role behaviors and OCB in their research. O’Reilly & Chatman (1986) found evidence of divergent validity between prosocial extrarole behavior directed at the organization and in-role performance. Williams and Anderson (1991) and MacKenzie et.al. (1991) demonstrated through a factor analysis that survey respondents could differentiate between in-role behaviors, OCBI and OCBO. While Williams and Anderson (1991) found a clear three factor representation of performance the OCBI-type performance items did not load in the O’Reilly & Chatman (1986) study. Future OCB research should routinely
include measurement of in-role behaviors along with OCB to insure that there is a factorial distinction between them. Contamination of ratings of the OCB variables based upon subject ability or inability to differentiate between in-role behavior and OCB needs to be ascertained at the outset of any discussion of study results. Like the factorial representation of OCB for any given sample (Dalton & Cosier 1988), the distinctiveness of in-role behavior in a particular work setting needs to be an empirical question in each study.

The measurement of OCB should be further refined from the Smith et.al. (1983) OCB scale. The Smith et.al. (1983) scale consistently produces the OCBI and OCBO type-factors and seems to reliably, if not completely, measure OCB. This reasoning argues for adding to and refining the Smith et.al. scale (1983) rather than creating an entirely new OCB measure. Scale development should focus on addition of items specific to different research sites and of items that might be meaningful in any setting.

A more general concern with the measurement of OCB is the source of the rating of that behavior. Co-worker ratings seem to be the least reliable (Williams & Anderson 1991). Both supervisory and self-report ratings of OCB have their own particular strengths and weaknesses. Creation of multivariate OCB statistical models would be a substantial
contribution to OCB prediction. Attempts should be made to validly combine self-report and supervisory ratings rather than choosing between the two (or simply comparing information from each source).

**Theoretical Issues**

**Intrinsic Motivation**

The theoretical support for relationships between the OCB variables and intrinsic motivation casts doubt on the operationalization of intrinsic motivation in this study. The results of studies concerning the effect of extrinsic rewards on intrinsic motivation were greatly impacted by whether personal control and competence were directly measured rather than assumed (Fisher 1978, Arnold 1985, Rummel & Feinberg 1988). It seems likely that self-determination (personal control) and competence were not accessed by the Internal Work Motivation Scale (Hackman & Oldham 1975). Because OCB seems to be more cognition-centered (Organ & Konovsky 1989, Organ 1990, Williams & Anderson 1991) and the Internal Work Motivation Scale is affect-centered, a cognition-centered scale that directly assesses perceptions of competence and control (self determination) would be a more appropriate operationalization of intrinsic motivation. Future research regarding OCB and intrinsic motivation should use a
cognition-centered scale for intrinsic motivation and a manipulation check that would assess whether competence and personal control were being measured. Desire for control should also be measured because of its potential for interacting with perceived control (Deci & Ryan 1985).

Organizational Commitment

Although this study found a strong relationship between organizational commitment and the OCB variables, previous research has produced mixed results (O’Reilly & Chatman 1986, Schaubroeck and Ganster 1991, Williams & Anderson 1991). The Williams and Anderson (1991) sample and part of the O’Reilly & Chatman (1986) sample were the only employees that were used when examining the relationship. For the employee samples Williams and Anderson (1991) did not find a relationship for either OCBO or OCBI with organizational commitment and O’Reilly and Chatman (1986) found a relationship between unidimensional OCB and an organizational commitment factor. Time one and time two data producing the same strong results in this study (using actual employees) is reason for some confidence that there is a relationship. That the time one and time two data were not from independent samples, however, makes it important to conduct further research to replicate these findings.
Relationship to Other OCB Studies

Organizational fairness has proved to be theoretically and empirically important to understanding OCB (Moorman 1991, Farh et al. 1990. Organ & Konovsky 1989). Fairness perceptions are based on judgements regarding externally administered treatments. As such they are related to extrinsic motivation and are inadequate to understand that part of OCB that is intrinsically motivated. Organ (1990) speculated that intrinsic outcomes from the work itself may make an employee less likely to dwell on unfair treatment that would otherwise result in less OCB. The research regarding the effect of extrinsic rewards on intrinsic motivation suggests that such effects may be additive or offsetting depending on whether the rewards reinforce or undercut competency and self-determination (Fisher 1978, Arnold 1985, Rummel & Feinberg 1988). Intrinsic motivation is a variable that is theoretically important to a more complete understanding of OCB as well as OCB and its relationship to fairness. Future OCB research should include fairness and intrinsic motivation, operationalized as competence and self-determination, in the same model.
APPENDIX A
ORGANIZATIONAL CITIZENSHIP BEHAVIOR ITEMS -- SUPERVISOR

1. Helps other employees with their work when they have been absent. (OCBI)

2. Exhibits punctuality in arriving at work on time in the morning and after lunch and breaks. (OCBO)

3. Volunteers to do things not formally required by the job. (OCBI)

4. Takes undeserved work breaks. (R) (OCBO)

5. Takes the initiative to orient new employees to the department even though it is not part of his/her job description. (OCBI)

6. Exhibits attendance at work beyond the norm, for example, takes less days off than most individuals or less than allowed. (OCBO)

7. Helps others when their work load increases (assists others until they get over the hurdles). (OCBI)

8. Coasts toward the end of the day. (R) (OCBO)

9. Gives advance notice if unable to come to work. (OCBO)

10. Spends a great deal of time in personal telephone conversations. (R) (OCBO)

11. Does not take unnecessary time off work. (OCBO)

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12. Assists me with my duties. (OCBI)

13. Makes innovative suggestions to improve the overall quality of the department. (OCBI)

14. Does not take extra breaks. (OCBO)

15. Willingly attends functions not required by the organization, but helps in its overall image. (OCBI)

16. Does not spend a great deal of time in idle conversation. (OCBO)

(OCBI) — OCB aimed at individuals; altruism
(OCBO) — OCB directed at organization in general; conscientiousness
(R) — Reverse scored item
APPENDIX B
ORGANIZATIONAL CITIZENSHIP BEHAVIOR ITEMS -- EMPLOYEE

1. I help other employees with their work when they have been absent. (OCBI)

2. I exhibit punctuality in arriving at work on time in the morning and after lunch and breaks. (OCBO)

3. I volunteer to do things not formally required by the job. (OCBI)

4. I take undeserved work breaks. (R) (OCBO)

5. I take the initiative to orient new employees to the department even though it is not part of my job description. (OCBI)

6. I exhibit attendance at work beyond the norm, for example, takes less days off than most individuals or less than allowed. (OCBO)

7. I help others when their work load increases (assist others until they get over the hurdles). (OCBI)

8. I coast toward the end of the day. (R) (OCBO)

9. I give advance notice if unable to come to work. (OCBO)

10. I spend a great deal of time in personal telephone conversations. (R) (OCBO)

11. I do not take unnecessary time off work. (OCBO)
12. I assist my supervisor in his/her duties. (OCBI)

13. I make innovative suggestions to improve the overall quality of the department. (OCBI)

14. I do not take extra breaks. (OCBO)

15. I willingly attend functions not required by the organization, but helps in its overall image. (OCBI)

16. I do not spend a great deal of time in idle conversation. (OCBO)

(OCBI) -- OCB aimed at individuals; altruism
(OCBO) -- OCB directed at organization in general; conscientiousness
(R) -- Reverse scored item
APPENDIX C

INTRINSIC MOTIVATION ITEMS

1. My opinion of myself goes up when I do this job well.

2. I feel a great sense of personal satisfaction when I do this job well.

3. I feel bad and unhappy when I discover that I have performed poorly on this job.

4. My own feelings generally are not affected much one way or the other by how well I do on this job. (R)

5. Most people on this job feel a great sense of personal satisfaction when they do the job well.

6. Most people on this job feel bad or unhappy when they find they have performed the work poorly.

(R) -- Reverse Scored Item
APPENDIX D
ORGANIZATIONAL COMMITMENT ITEMS

1. I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.

2. I talk up this organization to my friends as a great organization to work for.

3. I feel very little loyalty to this organization. (R)

4. I would accept almost any type of job assignment in order to keep working for this organization.

5. I find that my values and the organization's values are very similar.

6. I am proud to tell others that I am part of this organization.

7. I could just as well be working for a different organization as long as the type of work were similar. (R)

8. This organization really inspires the very best in me in the way of job performance.

9. It would take very little change in my present circumstances to cause me to leave this organization. (R)

10. I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.
11. There's not too much to be gained by sticking with this organization indefinitely. (R)

12. Often, I find it difficult to agree with this organization's policies on important matters relating to its employees. (R)

13. I really care about the fate of this organization.

14. For me this is the best of all possible organizations for which to work.

15. Deciding to work for this organization was a definite mistake on my part. (R)

(R) -- Reverse Scored Item
References


