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By

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ABSTRACT

INTERINDIVIDUAL DIFFERENCES IN INTRAINDIVIDUAL CHANGES IN PROACTIVITY DURING ORGANIZATIONAL ENTRY: A LATENT GROWTH MODELING APPROACH TO UNDERSTANDING NEWCOMER ADAPTATION

By

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The newcomer's experience during organizational entry (i.e., during the first few months of work in the organization) has often been described in recent socialization literature as an individual adaptation process. Intraindividual change over time is the essence of the change phenomenon hypothesized to occur in the individual newcomer adaptation process. Many important adaptation questions can not be answered without an adequate conceptualization and assessment of individual differences in intraindividual change. Yet, current empirical research has paid little attention to interindividual differences in across-time intraindividual variability in the focal change variables. The present study models explicitly the nature of intraindividual change over time that occurs in the newcomer adaptation process. Using a latent growth modeling approach to data collected from 146 doctoral program newcomers over four repeated measurements spaced at 1-month intervals, the study examines systematic interindividual differences in intraindividual changes in newcomer proactivity (information seeking, relationship building) during organizational entry. Results indicate how changes in proactivity are

related to newcomer characteristics (proactive personality, previous transition experiences, background variables), proximal adaptation outcomes (task mastery, role clarity, social integration), and distal adaptation outcomes (job performance, satisfaction, organizational commitment, professional commitment) in interesting ways that have not been previously examined.

Dedicated to

Sapuan Bin Kasmari and Kong Kin Seng

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INTRODUCTION

The newcomer's experience during organizational entry (i.e., during the first few months of work in the organization) has often been described in recent socialization literature as an individual adaptation process (e.g., Ashford & Black, 1996; Ashford & Taylor, 1990; Bauer & Green, 1994; 1998; Louis, 1980; Morrison, 1993a, 1993b). This adaptation process is seen as critical to the development of attitudes and behaviors that enable that newcomer to function effectively during the transition period and adjust to the new work environment (Schaubroeck & Green, 1989; Vanderberg & Self, 1993). Effective functioning and positive work adjustment are desirable to the extent that they are mutually satisfying and mutually beneficial to both the individual and the organization. Conversely, poor adaptation during this transition period can lead to negative attitudes, poor performance, and turnover (Louis, 1980), which in turn can negatively impact both the individual and the organization. Hence, from an applied research perspective, the newcomer adaptation process ought to be of interest. A basic understanding of the adaptation process including the extent of and changes in proactive behaviors (e.g., information seeking) newcomers engage in during the transition period, how these proactivities and changes relate to various adaptation outcomes (e.g., task mastery, role clarity), and how newcomer characteristics are associated with proactivities and adaptation outcomes, should provide a knowledge base for organizations to make informed decisions concerning human resource activities. For example, if newcomers

with certain characteristics are more likely to adapt quickly to the new work environment, then it may be worthwhile to consider these personal characteristics when planning recruitment activities or designing selection systems.

The newcomer adaptation process may be characterized by intraindividual changes in the newcomer's proactions (e.g., information seeking), and adaptation outcomes (e.g., task mastery). Because the central interest in the adaptation process is the intraindividual changes that occur over time during organizational entry, researchers have begun to adopt a longitudinal approach in their attempt to understand newcomer adaptation (e.g., Ashford & Black, 1996; Fisher, 1985; Major, Kozlowski, Chao, & Gardner, 1995; Morrison, 1993a; Saks, 1995). Note that the term longitudinal is used here to refer to across-time repeated measurement on the same variables for the same individuals. Collecting data on different variables at different points in time does not involve repeated measurement on the same variables and does not constitute a true longitudinal design. Without a true longitudinal design, it is difficult to isolate cause and effect. For example, Bauer and Green (1998) attempted to examine the effects of newcomer information seeking and manager behavior on socialization using data on different variables collected at different points in time. Specifically, they collected data on biographical variables (e.g., gender, starting salary) at Time 1, information seeking (e.g., task-oriented information seeking) and newcomer accommodation (e.g., role clarity) variables at Time 2, and socialization outcome variables (e.g., job satisfaction) at Time 3. Bauer and Green (1998) acknowledged that no clear statements of causation can be made

on the basis of their study design because the design did not allow the possibility of assessing if variables influence each other over time. A limitation of Bauer and Green's study is that there were no across-time repeated measurement on the same variables for the same individuals.

Many existing longitudinal research studies on newcomer adaptation do employ longitudinal panel designs involving across-time repeated measurement on the same variables for the same individuals. However, in these studies, changes over time have often been examined at the group or aggregate level (e.g., in terms of mean differences) on data collected from newcomers at or shortly after organizational entry and at one or more occasions after a period of employment has elapsed. Although this traditional group-level assessment of change may provide some information on the amount of change for a group of newcomers, it does not provide an adequate conceptualization and analysis of the nature of the intraindividual changes over time. Even when studies included individual level variables (e.g., self-efficacy) to predict the focal change variable (e.g., information seeking behavior), these studies adopted traditional approaches that emphasized within-time interindividual variability in the focal change variable (e.g., correlating self-efficacy with information seeking at a single point in time) to the exclusion of across-time intraindividual variability. Yet, intraindividual change over time is the essence of the change phenomenon hypothesized to occur in the individual newcomer adaptation process. By focusing exclusively on mean differences over time or within-time interindividual variability, many important adaptation questions concerning

the nature of intraindividual change over time either are not or can not be adequately conceptualized and examined empirically. These questions include

Question A: The form of the intraindividual change trajectory (e.g., linear versus quadratic, increasing versus decreasing);

Question B: Systematic interindividual differences in initial status at entry;

Question C: Systematic interindividual differences in the rate of intraindividual change;

Question D: The relationship between initial status and rate of intraindividual change;

Question E: Relationships between person variables (i.e., newcomer characteristics) and initial status and between person variables and rate of change;

Question F: Cross-domain relationships (e.g., between information seeking and task mastery) with respect to A-E; and

Question G: The invariance across groups (e.g., gender and ethnic groups) with respect to A-F.

I am not aware of any published empirical study in the socialization literature that has examined directly the above seven adaptation questions. These questions are important because many limitations in current research on newcomer adaptation can be traced to a lack of attention paid to these questions. For example, what is the nature of the relationship between technical information seeking behavior and task mastery in the adaptation process? It is likely that the association between the two variables can either be positive or negative, partly because the two variables are likely to have reciprocal

effects on each other. Conceptualizing and testing the relationship between the two variables is difficult when the change trajectories of the two variables are not explicitly taken into account in conceptualization and assessment. The precise nature of the relationship between the two variables is likely to be dependent on whether we are referring to each variable at the point of organization entry, at the end of the transition period, or in terms of the variable's rate of change over the transition period. As shown later in this study, specifying hypotheses relating the two variables and testing them in terms of within-time measurement and across-time measurement helps clarify the nature of the adaptation process.

The purpose of this study is to model explicitly the nature of intraindividual change over time that occurs in the newcomer adaptation process. Using a latent growth modeling approach (LGM, McArdle & Epstein, 1987; Meredith & Tisak, 1990; Muthen, 1991; Stoolmiller, 1994; Willett & Sayer, 1994), I examined systematic interindividual differences in intraindividual change in newcomer proactivity (e.g., information seeking) and adaptation (e.g., role clarity) during organizational entry and attempted to address directly the adaptation questions A to G. The focus on proactivity is consistent with recent socialization literature and organizational entry research that conceptualize the newcomer as an active participant in the socialization process (e.g., Comer, 1991; Miller & Jablin, 1991; Morrison, 1993a, 1993b; Reichers, 1987). More generally, the latent growth modeling approach adopted in the present study would provide a conceptual and methodological basis for future conceptualizations and empirical research on the nature of

intraindividual changes in the newcomer adaptation process. I will first review briefly the literature on newcomer adaptation with a focus on proactivity during organizational entry. The concept of intraindividual change in proactivity and the relationships between proactivity variables, person variables (i.e., newcomer characteristics), and adaptation outcome variables are then explicated and specific hypotheses concerning relevant adaptation questions are derived.

As an advance organizer, Figure 1 depicts a schematic representation of the overall relationships among the variables examined in the present study. As shown in the figure, newcomer proactive behaviors and proximal adaptation outcomes are expected to have reciprocal influences on each other. Note that the proactivities and adaptation outcomes are time-sensitive variables. For each of these variables, whenever it is referenced in a hypothesized relationship, the conceptualization and assessment make explicit whether it is the point of organizational entry, the rate of change during the transition period, or the end of the transition period that is referred to. It will be shown later that it is because of this time-sensitive conceptualization and assessment that the reciprocal effects between proactivity and adaptation outcomes can be systematically examined. Newcomer characteristics are time-invariant variables and they are expected to predict proactivities and proximal adaptation outcomes. Note also that newcomer characteristics, proactivities, and proximal adaptation outcomes may have effects on distal adaptation outcomes such as overall job performance, job satisfaction, organizational commitment, and professional commitment. Although distal adaptation

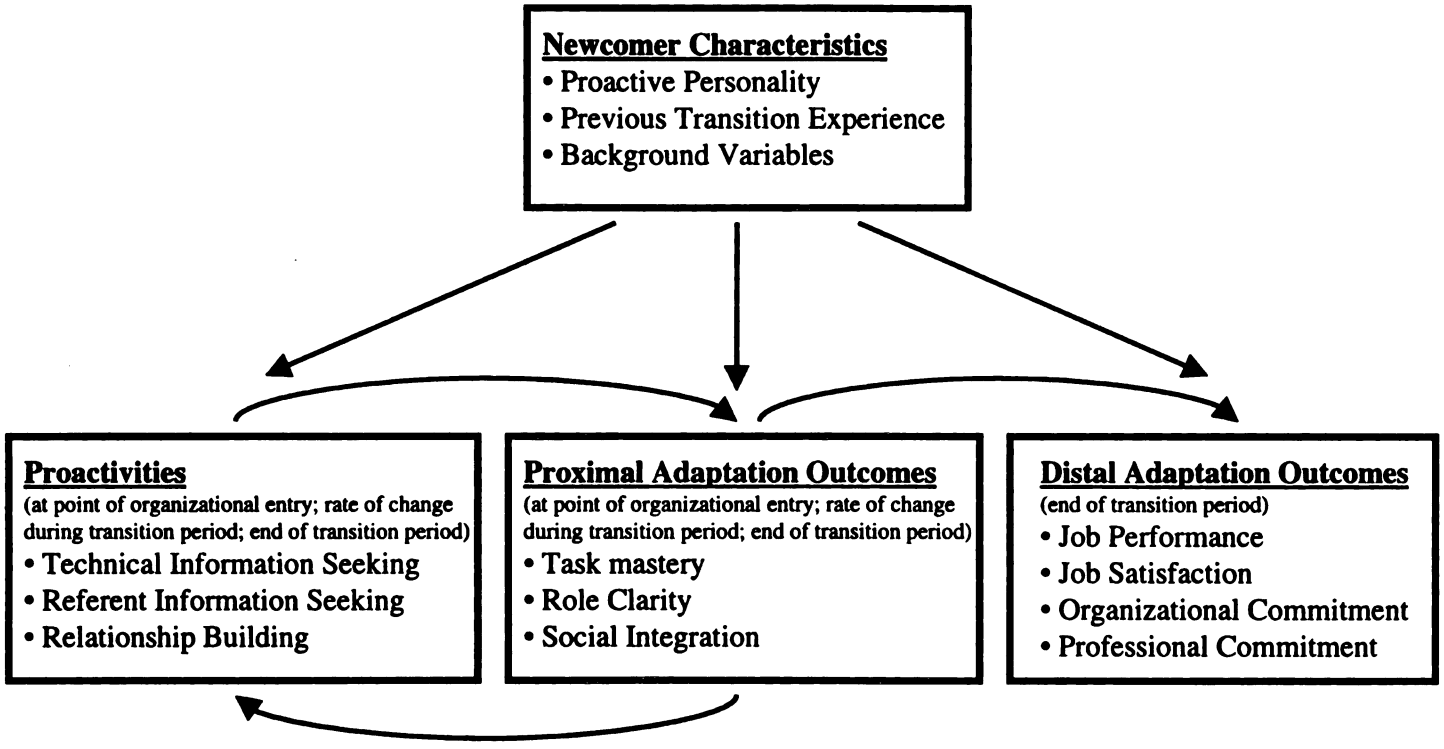

Figure 1 - Schematic Representation of Study Variables

outcomes are also time sensitive, the interest in the present study was in the distal adaptation outcomes at the end of the transition period. Because Figure 1 depicts only the variables examined in the present study, it is necessarily a simplified representation of the newcomer adaptation process. For example, in addition to the specified newcomer characteristics and proactivity variables, both proximal and distal adaptation outcomes are likely to be affected by a host of other person and situational variables omitted from the present study. The following sections review the literature on the present study variables and explicate the rationale for the relevant hypotheses.

Newcomer Adaptation and Proactivity

Early socialization literature described socialization in terms of a series of stages that the newcomer must pass through to become assimilated into the organization (e.g., Feldman, 1981; Graen, 1976; Porter, Lawler, & Hackman, 1975; Van Maanen, 1976) and focused on situational factors such as socialization tactics used by organizations that influence newcomers during the entry transition period (e.g., Jones, 1986; Van Maanen, 1978; Van Maanen & Schein, 1979). Morrison (1993b) noted that although the early socialization studies have made some important contributions, they are limited in three respects. First, newcomers are often portrayed as passive or reactive and their proactive role has been neglected. Second, the role of information is not explicitly recognized and how newcomers obtain information has not been investigated. Third, few studies have examined socialization as it unfolds over time.

Recent socialization research has begun to address one or more of the above three limitations. For example, several recent socialization studies conceptualized the newcomer as an active participant who is continually engaging during organizational entry in an individual adaptation process characterized by patterns of proactivity such as information seeking (e.g., Ostroff & Kozlowski, 1992) and relationship-building (e.g., Adkins, 1995). These proactivities are behavioral manifestations of the newcomer's attempt to "sensemake" (Louis, 1980) and to facilitate his or her own adjustment in a period of transition (Reichers, 1987). In the attempt to examine socialization as it unfolds over time, some of these recent studies have employed longitudinal designs to obtain repeated measurements (over time) of focal variables from the same group of newcomers.

Consistent with the current conceptualization of the newcomer experience as an individual sensemaking and adaptation process and the newcomer as an active participant in the socialization process, the present study focused on two important proactivity variables (information seeking and relationship building), their individual person predictors (proactive personality and previous transition experiences), and correlates construed as proximal and distal adaptation outcomes (proximal: task mastery, role clarity, social integration; distal: job performance, satisfaction, organizational commitment, professional commitment). The two proactivity variables and the three proximal adaptation outcomes have been of interest to recent socialization researchers. The first three distal adaptation outcomes are traditional outcomes examined in socialization research. Professional commitment was also examined as a distal adaptation

outcome in the study because of its relevance to the nature of the present sample. Unlike previous research, the present study focused directly on the intraindividual changes associated with these proactivity and adaptation outcome variables.

The set of focal variables in the present study is by no means an exhaustive list of the critical proactivity and associated variables in the newcomer adaptation process. The focal variables were chosen using two criteria: (1) there are theoretical reasons to believe that they play critical roles in newcomer adaptation, and (2) there are empirical findings on these variables reported in the socialization literature that allow comparisons with the present conceptualization and analysis of adaptation as intraindividual change. The following sections explain the rationale for each focal variable included in the study and specify the corresponding hypotheses.

The Proactivity of Information Seeking

Information seeking is the most widely studied proactive behavior in the newcomer adaptation process. Several researchers noted that an important way in which newcomers are proactive in their socialization is by seeking information (Ashford & Taylor, 1990; Louis, 1980; Morrison, 1993b). When newcomers enter an organization, they are confronted with uncertainty (Feldman & Brett, 1983) and surprises (Louis, 1980). Seeking information is one of the major proactive attempts to reduce the uncertainty of the new environment (Miller & Jablin, 1991) and make sense out of the new setting (Louis, 1980). The notion of individuals as active information seekers is drawn from a variety of research domains including research on coping and adaptation

(e.g., Folkman & Lazarus), feedback seeking (e.g., Ashford & Cummings, 1983), and interpersonal communication (e.g., Berger, 1984).

Recent research on newcomer proactivity has focused on information seeking (e.g., Miller & Jablin, 1991; Morrison, 1993a, 1993b; Major et al., 1995; Ostroff & Kozlowski, 1992). Various types of information have been described in newcomer research on information seeking. The present study focused on two types of information that have consistently been examined across empirical studies. The two types of information are technical information and referent information (Morrison, 1993b). Technical information refers to information about how to perform the job, including how to complete specific job tasks, use equipment, tools, and other resources, allocate time to various job assignments, and establish work priorities (Feldman, 1981; Miller & Jablin, Morrison, 1993b; Ostroff & Kozlowski, 1992, Smith, 1993). Referent information refers to information about role demands and expectations, that is, information about what others demand from or expect of the newcomer on the job (Feldman, 1981; Louis, 1980; Morrison, 1993b; Reichers, 1987). The present study focused on coworkers and supervisors as sources of information because coworkers and supervisors are the most relevant persons (as opposed to indirect superiors, support staff, clients, family members, and friends) for newcomers to ask for technical and referent information (Morrison, 1991). Louis, Posner, and Powell (1983) found that coworkers and supervisors are the most helpful sources of information during newcomer adaptation.

There are various modes of information seeking behavior. For example, Ashford and Cummings (1983) identified two primary seeking modes which they called inquiry and monitoring (observation). In the inquiry method, the newcomer directly asks another person for information. In the monitoring method, the newcomer attends to a situation and/or behavior of others to obtain informational cues. The present study focused on the method of inquiry because inquiry is a relevant method of seeking information from both coworkers and supervisors whereas the monitoring method is less relevant with respect to supervisor as information source. In addition, inquiry is the most widely studied method of information seeking. In summary, the present study focused on the two most commonly studied types of information (i.e., technical and referent information) sought from the two most relevant and commonly studied sources (i.e., coworkers and supervisors) using the most widely studied mode of information seeking (i.e., inquiry method). In doing so, questions concerning intraindividual changes in newcomer information seeking could be compared with findings from existing empirical studies.

Prior to examining individual differences and intraindividual changes in information seeking, it is useful to examine information seeking at the group level of analysis. The nature of information seeking at the group level provides a framework for investigating interindividual and intraindividual changes.

Previous research found that newcomers often seek technical information from coworkers more frequently than from supervisors (Burke & Bolf, 1986; Comer, 1991; Louis et al., 1983). This finding is consistent with the argument that coworkers are

valuable sources of technical information because they tend to possess expertise with respect to newcomers' jobs and compared to supervisors, coworkers are more likely to perform tasks similar to those performed by newcomers (Burke & Bolf, 1986; Louis et al., 1983). In addition, social costs may be lower when newcomers ask coworkers for technical information than when they ask supervisors (Smith, 1993). Morrison (1993b) reported a contrary finding. Using a sample of accountants, she found that newcomers sought technical information from supervisors more frequently than from coworkers. Morrison believed that the contrary finding was probably unique in her sample because the supervisors were also accountants who performed tasks essentially similar to those performed by the newcomers. In addition, social costs of inquiry were probably relatively low because the supervisors were only two years ahead of the newcomers.

There is some evidence indicating that newcomers seek referent information from supervisors more frequently than from coworkers (Morrison, 1993b). This finding is consistent with the fact that supervisors are typically responsible for assigning tasks, delegating responsibility, and evaluating and rewarding performance. On the basis of these previous findings regarding the type of information sought by newcomers and the sources from which information were sought, the first hypothesis in the present study specified the relationship between information type and information source at the group level at initial organizational entry. Hypothesis 1 is essentially a replication of previous findings and it provides the point of departure for examining group level changes over time as well as interindividual and intraindividual changes. It was predicted that

Hypothesis 1: At initial organizational entry, there will be an Information Type X Information Source interaction effect on the extent of information seeking by newcomers. Specifically, newcomers will ask coworkers for technical information more frequently than they will ask supervisors, but they will ask supervisors for referent information more frequently than they will ask coworkers.

Before examining questions about interindividual differences in intraindividual changes in information seeking (or any other variable), the more basic question concerning the nature of the change trajectory over time (i.e., the functional form of the change) needs to be addressed (Willett & Sayer, 1994). Logically, there is an infinite number of functional curves (forms) that a change trajectory can take on. However, cutting across many functional curve models successfully applied in psychology is one important and reasonably general aspect of change. That is, regardless of its exact form (e.g., linear, quadratic), the change featured by most models is monotonic (Collins & Cliff, 1990). The variable of interest either increases or decreases (i.e., changes monotonically) across time within individuals.

A monotonic function appears reasonable for studies of newcomer adaptation where the focus is on a relatively short transition period during organizational entry (several months). Of course, for any proactivity or other adaptation variable, some theory of change is needed to hypothesize a monotonic functional form. With respect to information seeking, several researchers have argued that the overall frequency of newcomer information seeking should decrease over time (Ashford, 1986; Feldman &

Brett, 1983). These researchers argued that the social costs of information seeking increase with tenure because for "senior" newcomers, seeking may "undermine their standing as confident and self-assured veterans" (Ashford, 1986, p.487). There is some evidence from the socialization literature indicating monotonic change in newcomer information seeking. Ashford (1986) found that frequency of feedback seeking was negatively correlated with tenure. Using an occupationally heterogeneous sample of 449 newcomers who had been in the organization for a year or less, Smith (1993) found that the extent to which newcomers asked supervisors or coworkers for technical information decreased as newcomer tenure increased. Because of the cross-sectional nature of the design, the use of tenure provides only indirect evidence for a decrease in information seeking over time. Morrison (1993b) provided more direct evidence by using a longitudinal design to track the information seeking trajectory over a six-month period. Morrison found that the overall frequency of information seeking was quite stable but she suggested that the six-month time frame used may be too short for changes to occur. However, Morrison did find changes in the frequency with which specific types of information were sought. For example, over time, newcomers sought more referent information and performance feedback. Morrison noted that the finding was consistent with Katz's (1980) argument that with increasing time in the organization, newcomers become less concerned about fitting in and more concerned about performance evaluation. Morrison also found that over time, newcomers sought less technical information, a finding that is consistent with Smith's (1993) finding on the negative

relationship between tenure and technical information seeking. Morrison argued that technical information seeking decreases over time because job mastery increases. In addition, the earlier argument that information seeking increases social costs with increase in tenure could also apply.

Previous studies have not explicitly linked information type to information source when examining changes in information seeking over time. As predicted in Hypothesis 1, technical information is expected to be sought primarily from coworkers whereas referent information is expected to be sought primarily from supervisors. Hence, over time, although technical information seeking from coworkers may decrease, seeking from supervisors may be quite stable. Conversely, over time, although referent information seeking from supervisors may decrease, seeking from coworkers may be quite stable. Hypothesis 2 specified the information seeking trajectory over time taking into account both information type and information source. An Information Type X Information Source interaction effect on the direction of the change trajectory was expected. Specifically, it was predicted that

Hypothesis 2a: Over time, the extent to which newcomers ask coworkers for technical information will decrease.

Hypothesis 2b: Over time, the extent to which newcomers ask supervisors for technical information will remain constant.

Hypothesis 2c: Over time, the extent to which newcomers ask coworkers for referent information will remain constant.

Hypothesis 2d: Over time, the extent to which newcomers ask supervisors for referent information will increase.

Although Hypothesis 2 is silent about the exact form of the monotonic change other than specifying the direction of change (i.e., increase or decrease), the latent growth modeling (LGM) approach for testing the hypothesis (to be explained later in the method section) can be used to extend previous studies by directly comparing the relative fit between models specifying different trajectory forms. For every focal change variable examined in the present study, I assessed whether a curvilinear trajectory would provide a better fit than a linear trajectory.

The Proactivity of Relationship Building

Another important proactivity that newcomers may engage in is relationship building (Adkins, 1995). Relationship building refers to proactive behaviors that seek out interaction opportunities (Reichers, 1987). Examples of relationship building behaviors include participating in formal social activities, stopping by other people's offices or work areas to talk, and initiating social opportunities. Several researchers have argued that relationship building is an important proactivity because it helps newcomers acquire appropriate role behaviors, gain a sense of organizational policies and procedures, build friendship networks and social support, and reduce uncertainty by understanding the new situation (Ashford & Black, 1996; Morrison, 1993b; Nelson & Quick, 1991; Reichers, 1987).

Before addressing questions concerning interindividual differences in intraindividual changes in relationship building and the associated individual correlates and adaptation outcomes, the basic question concerning the nature of the change trajectory of relationship building needs to be addressed. Unlike the proactivity of information seeking, no empirical study has directly examined changes in the extent to which newcomers build relationships over time. Several researchers, however, have suggested that building relationships with coworkers is one of the proactivities newcomers engage in before they settle into their new roles (Feldman, 1976; Porter et al., 1975; Schein, 1978; Van Maanen, 1976). As mentioned earlier, Katz (1980) argued that over time, newcomers become less concerned with fitting in socially and more concerned with how they are performing. Based on these arguments, we would expect the extent to which newcomers engage in relationship building with coworkers to decrease over time. There is some evidence to suggest it is useful to distinguish between building relationships with supervisors and building relationships with coworkers. For example, Ashford and Black (1996) found that job performance and building relationships with supervisor were strongly correlated ($\beta = .56$, $p < .001$). However, job performance was not significantly related to building relationships with coworkers (labeled networking, $\beta = -.08$, n.s.) or general socializing ($\beta = -.05$, n.s.). Unlike relationship building with coworkers, it appears that relationship building with supervisors has little to do with fitting in socially. Relationship building with supervisors is likely to remain quite stable over time. Because the present study was interested in changes in relationship building

over time and because of the relatively large number of variables studied, only relationship building with coworkers was examined. It was predicted that

Hypothesis 3: Over time, the extent to which newcomers engage in relationship building with coworkers will decrease.

Intraindividual Changes in Proactivity:

Interindividual Differences and Individual Predictors

Having specified the basic form of the intraindividual change trajectory over time, we can now address questions concerning potential systematic interindividual differences in intraindividual change and individual predictors of these differences. Traditional socialization research focused on the group or aggregate level of analysis and individual variability among newcomers was treated as error. Recent research on newcomer adaptation has begun to examine the associations between proactivity and individual dispositions or background variables. For example, there is some evidence that information seeking behaviors are associated with such individual difference variables as tolerance for ambiguity, self-esteem, cognitive complexity, desire for control, and self-efficacy (Ashford & Black, 1996; Ashford & Cummings, 1985; Ashford & Taylor, 1990; Jones, 1986; Major & Kozlowski, 1990; Miller & Jablin, 1991). However, these studies generally adopted traditional approaches that emphasized within-time interindividual variability in the focal change variable (e.g., correlating self-efficacy with information seeking at a single point in time) to the exclusion of across-time intraindividual variability which is the essence of the change phenomenon hypothesized to occur in the

individual newcomer adaptation process. In addition, no study has directly examined potential relationships between individual difference variables and intraindividual changes in proactivity. The present study examined how individual difference variables (proactive personality and previous transition experience) could affect the nature of intraindividual changes in proactivity.

The basic idea in examining interindividual differences in intraindividual changes in proactivity is to demonstrate that individual variability among newcomers in proactivity has a systematic component that is not attributable to measurement error and is related to the selected predictors or correlates of change. Although newcomers share the same basic functional form in their change trajectories, they were expected to differ significantly in their individual growth parameters (Bryk & Raudenbush, 1987; Rogosa, Brandt, & Zimowski, 1982; Rogosa & Willett, 1985; Willett, 1988, 1994). For example, if individual change is increasing linearly with time, individuals may differ in initial status (intercept) and rate of change (slope). In the present study, newcomer proactivities were expected to differ in both initial status and rate of change. Interindividual variability in these growth parameters can be tested for statistical significance in the LGM analysis.

Once interindividual differences in individual growth parameters are estimated, these differences can be related to selected predictors or correlates of change. Although a relatively large set of individual predictors (a total of 9 predictor variables) was examined in the present study, formal hypotheses were formulated for a dispositional variable and a

background variable as predictors of change. The dispositional variable is proactive personality (Bateman & Crant, 1993) and the background variable is previous transition experience. These variables were selected because there are theoretical reasons and some indirect empirical evidence to suggest that they may be associated with intraindividual changes in information seeking and relationship building. The following sections introduce each of these individual-level predictor variables and relate it to proactivity. Correlates of change that are construed as adaptation outcomes will be discussed later. Because of the relatively large number of variables in the present study, subsequent hypotheses on information seeking will examine only one information source for each information type. For technical information, I focused only on inquiry of coworkers because coworker was expected to be the primary information source. For referent information, I focused only on inquiry of supervisors because inquiry of supervisors was expected to be the primary information source.

Proactive Personality and Proactivity. Adopting an interactionist perspective (Bandura, 1997; Schneider, 1983), Bateman and Crant (1993) introduced the construct of proactive personality when discussing the proactive component of organizational behavior. The individual difference (personality) construct of proactive personality refers to a general disposition to make active attempts to influence or effect changes in one's surrounding environment. Individuals high on proactive personality are relatively unconstrained by situational forces and they effect environmental changes. They show initiative, take action, and persevere until they bring about meaningful change (Bateman

& Crant, 1993; Crant, 1995). Using a sample of real estate agents, Crant (1995) found that proactive personality, as measured by the Proactive Personality Scale (Bateman & Crant, 1993), accounted for an additional 8% of the variance in job performance after controlling for the effects of experience, social desirability, general cognitive ability, conscientiousness, and extraversion.

The present study examined whether proactive personality would predict the extent to which newcomers engage in proactivity at the point of organizational entry and whether it would be associated with interindividual differences in intraindividual changes in proactivity. To effect meaningful change in the environment, it is necessary for the newcomer to gather or seek out relevant information. The information gathered serves as the "raw material" for understanding the environment and subsequent attempts to alter it. Because newcomers high in dispositional proactivity tend to influence events and effect changes in the environment, they should be more likely to actively seek out information than newcomers low in dispositional proactivity. Proactive personality is a general disposition toward effecting changes in the environment and is not domain specific. Hence, newcomers high in dispositional proactivity are more likely to attempt to alter both the technical aspects and the role demands and expectations of the job. At the point of organizational entry, newcomers high in dispositional proactivity should be more likely to seek out both technical and referent information. It was predicted that

Hypothesis 4a: Proactive personality will be positively correlated with the extent of technical information seeking from coworkers at the point of organizational entry.

Hypothesis 4b: Proactive personality will be positively correlated with the extent of referent information seeking from supervisors at the point of organizational entry.

In addition to predicting the initial status (i.e., at point of organizational entry) of technical information seeking, proactive personality was expected to predict the rate of change (intraindividual change over time) in seeking. Recall that some researchers have argued that the decrease in technical information seeking over time is a reflection of increasing task mastery. Hence, initial status of technical information seeking is likely to be positively correlated with the rate of decrease in seeking. By obtaining more technical information early in the socialization period, one masters the job tasks quickly and the need for technical information decreases over time quickly. If high proactive newcomers obtain more technical information early in the socialization period than low proactive newcomers (i.e., Hypothesis 4a), then the rate of decrease in technical information seeking over time should be higher in high proactive than low proactive newcomers. That is, proactive personality should be correlated with the rate of decrease in technical information seeking but the correlation can be explained by initial status of seeking. Hence, it was predicted that

Hypothesis 4c: Proactive personality will be positively correlated with the rate of decrease in technical information seeking from coworkers.

Hypothesis 4d: The relationship between proactive personality and the rate of decrease in technical information seeking from coworkers is mediated by the extent of technical information seeking at the point of organizational entry.

Unlike in the case of the relationship between proactive personality and rate of change in technical information seeking, it was not clear if proactive personality should be associated with rate of change in referent information seeking. There was also no theoretical reason to expect an association between the extent of referent information seeking at the point of organizational entry and the rate of change in seeking. Hence, no formal hypotheses relating proactive personality and rate of change in referent information seeking were specified.

Proactive personality is likely to predict relationship building with coworkers both at initial status (i.e., at the point of organizational entry) and in its rate of change. Interactions with coworkers help newcomers build friendship networks, acquire information on existing organizational policies and procedures, and gain a sense of the new situation, all of which should contribute to the success in influencing events and effecting meaningful changes. Because newcomers high in dispositional proactivity tend to show initiative and attempt to influence events and effect changes, they should, relative to newcomers low in dispositional proactivity, be more likely to seek out interaction opportunities (i.e., build relationships) with coworkers. Although it is expected that, in general, the extent to which newcomers engage in relationship building with coworkers will decrease over time (Hypothesis 3), high proactive newcomers are more likely to

decrease the extent of relationship building at a rate lower than that of low proactive newcomers. This is because high proactive newcomers are expected to be constantly making active attempts to influence events or effect changes in the environment. Hence, it was predicted that

Hypothesis 4e: Proactive personality will be positively correlated with the extent of relationship building with coworkers at the point of organizational entry.

Hypothesis 4f: Proactive personality will be negatively correlated with the rate of decrease in relationship building with coworkers.

Previous Transition Experience and Proactivity. A background variable that may be associated with proactivity is the amount of previous transition experiences. A transition experience is used here to refer to the experience in the first few weeks or months of a major and relatively permanent change of one's environment that involves substantial uncertainty and new demands. For example, in the life of a college student, transition experiences could include the initial period of relocating to a new city, joining a student organization, and assuming a part-time job. Given that organizational entry is a transition experience for the newcomer, it is somewhat surprising that the research on newcomer proactivity and adaptation has paid little, if any, attention to the newcomer's previous transition experiences. In the present study, it was expected that proactivity would be associated with the newcomer's amount of previous transition experiences.

In transition experiences, individuals engage in activities that are manifestations of the process of sensemaking and individual adaptation (Ashford & Taylor, 1990; Chan,

in press; Louis, 1980). These activities include seeking information about how to perform new tasks or obtain resources to meet new demands (i.e., seeking technical information), seeking information about new role demands and expectations (i.e., seeking referent information), and seeking interaction opportunities with other persons in the new environment (i.e., building relationships). Relative to newcomers who have experienced few transition situations, newcomers who have experienced more transition situations should have engaged to a larger extent in these adaptation activities. Their familiarity with these activities should increase the ease with which they perform these activities. With more previous transition experiences, these newcomers should also be highly cognizant of the value of these adaptation activities. Hence, it was predicted that

Hypothesis 5a: The amount of previous transition experience will be positively correlated with the extent of technical information seeking from coworkers at the point of organizational entry.

Hypothesis 5b: The amount of previous transition experience will be positively correlated with the extent of referent information seeking from supervisors at the point of organizational entry.

Hypothesis 5c: The amount of previous transition experience will be positively correlated with the extent of relationship building with coworkers at the point of organizational entry.

In addition to predicting the initial status of technical information seeking, the amount of previous transition experience was expected to predict the rate of change in

seeking. As explained earlier when explicating the rationale for Hypothesis 5, initial status of technical information seeking is likely to be positively correlated with the rate of decrease in seeking because of increasing task mastery. Hence, it was predicted that

Hypothesis 5d: The amount of previous transition experience will be positively correlated with the rate of decrease in technical information seeking from coworkers.

Hypothesis 5e: The relationship between the amount of previous transition experience and the rate of decrease in technical information seeking from coworkers is mediated by the extent of technical information seeking at the point of organizational entry.

Unlike in the case of the relationship between previous transition experience and rate of change in technical information seeking, it was not clear if the amount of previous transition experience should be associated with rate of change in referent information seeking. There was also no theoretical reason to expect an association between the extent of referent information seeking at the point of organizational entry and the rate of change in seeking. Similarly, it was not clear if the amount of previous transition experience should be associated with rate of change in relationship building with coworkers. There was also no theoretical reason to expect an association between the extent of relationship building with coworkers at the point of organizational entry and the rate of change in relationship building. Hence, no formal hypotheses relating previous transition

experience and rate of change in referent information seeking or rate of change in relationship building were specified.

Proactivity, Adaptation Outcomes, and Individual Predictors

Newcomer proactivities are important because they are expected to be associated with individual adaptation outcomes such as task mastery and role clarity. Virtually all studies on proactivity examined associations between proactivity and some selected adaptation outcomes. However, the time dimension relating to the conceptualization and measurement of adaptation outcomes has not received sufficient attention in current socialization research. Although there are few studies in which repeated measurements of adaptation outcomes were taken over time, only two time waves were used. For example, Morrison (1993a) collected data at three points in time but measured four proximal adaptation outcomes at two time waves (Time 1 and Time 3) separated by an interval of about six months. Adaptation scores on the first measurement (at Time 1) were used as baselines to control for differences soon after entry. Adaptation scores on the second measurement (at Time 3) were used as the dependent variables in hierarchical regression analyses in which the effects of proactivity variables were assessed at Step 2 of the regression after first entering adaptation scores on the first measurement as a control variable. Ostroff and Kozlowski (1992) collected data on both proactivity and proximal adaptation outcomes at two time waves. In their attempt to relate across-time changes in proactivity to across-time changes in adaptation outcomes, the authors analyzed their data using hierarchical regressions in which Time 2 adaptation outcome measures were treated

as dependent variables and Time 1 adaptation outcome measures were treated as control variables (entered in Step 1 of regressions). Difference scores obtained by subtracting Time 2 proactivity scores from the respective Time 1 proactivity scores were entered in Step 2 of the regressions and the incremental variance accounted for was used to index the effects of changes in proactivity on changes in adaptation outcomes.

The analyses performed by Morrison (1993a) and Ostroff and Kozlowski (1992) did not directly address the nature of intraindividual change over time because the inferences that can be drawn are limited given their study designs and data available. As noted early in this article, two-time wave designs may provide some information on the amount of change from one point in time to another point but it does not provide an adequate conceptualization and analysis of the nature of the intraindividual changes over time. "Snapshots" of status taken at two points in time are unlikely to reveal the intricacies of the intraindividual change trajectory over time (Willet & Sayer, 1994). Yet, the essence of newcomer individual adaptation is in the nature of intraindividual changes that occur across time. A major limitation of current research on proactivity and its adaptation outcomes is the failure to take into account the intraindividual changes in adaptation outcomes across time and how these change trajectories of adaptation outcomes are associated with the change trajectories of proactivity. The present study addressed this limitation by extending the two-time wave measurement of adaptation outcomes to multiple time waves and examining how the change trajectories of adaptation outcomes may be associated with the change trajectories of proactivity.

Examinations of the nature of intraindividual change trajectories over time and the relationships between these trajectories should bring us a step closer to the essence of the newcomer adaptation process.

Although previous research has examined relationships between individual difference variables and adaptation outcomes, these relationships have been conceptualized and assessed from a relatively static perspective that focused on within-time interindividual variability in the adaptation outcome variables. No attempts have been made to relate individual difference variables to across-time intraindividual variability in adaptation outcome variables. Moreover, no study has examined if proactivity variables mediate the relationships between individual difference variables and adaptation outcomes. The present study addressed these research gaps by examining whether interindividual differences in adaptation change trajectories could be predicted from individual difference variables such as proactive personality, previous transition experiences, and other newcomer background variables (e.g., gender, age). The focus on change trajectories and cross-domain relationships (e.g., relationship between technical information seeking at point of organizational entry and rate of task mastery over time) would help elucidate the dynamic and complex nature of the newcomer adaptation process.

Both proximal and distal adaptation outcomes of proactivity were examined in the present study. The following sections describe each adaptation outcome variable and

explain the rationale for its corresponding hypothesized relationships with individual difference variables and proactivity variables.

Proximal Adaptation Outcomes

Most of the early empirical socialization research conceptualized and assessed adaptation outcomes in terms of traditional organizational behavior outcome variables such as job performance, turnover, satisfaction, and organizational commitment (e.g., Feldman, 1981; Louis et al., 1983; Nelson, 1987; Van Maanen & Schein, 1979). However, these traditional outcome variables are only distally related to newcomer proactivity because there are a host of other intervening variables and antecedent variables related to these variables. Recent studies on newcomer proactivity have begun examining more proximal adaptation outcomes including task mastery, role clarity, and social integration (e.g., Morrison, 1993a; Ostroff & Kozlowski, 1992; Smith, 1993). These recent studies have produced some encouraging results relating proactivity and proximal adaptation outcomes. For example, in a sample of 240 newly recruited staff accountants, Morrison (1993a) found that the extent of technical information seeking was related to task mastery and the extent of referent information seeking was related to role clarity.

The present study examined three proximal adaptation outcomes of proactivity namely, task mastery, role clarity, and social integration. These three outcomes were selected because they are often considered as primary adaptation outcomes in the socialization process. In addition, there are theoretical reasons and some empirical

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evidence to suggest that these outcomes are associated with information seeking and relationship building (Feldman, 1976, 1981; Fisher, 1986; Louis, 1980; Morrison, 1993a; Reichers, 1987). Task mastery refers to the degree to which the newcomer effectively performs and masters his or her job tasks. Task mastery is most often assessed in socialization research using self report measures. Hence, strictly speaking, we are assessing newcomers' self perceptions of task mastery and the adaptation outcome is better described as the newcomer's sense of task mastery. Consistent with the newcomer adaptation literature, the term task mastery is used in the present article to refer to this subjective sense of mastering one's job tasks. Role clarity refers to the degree to which the newcomer is clear about what others expect of him or her in the job. Social integration refers to the degree to which newcomers have developed personal relationships with their coworkers and are integrated into their work group.

Task mastery, role clarity, and social integration have been construed in newcomer adaptation research as consequents of proactivity in the sense that they are affected by newcomers' proactive behaviors. That is, proactivity influences these adaptation outcomes. However, these adaptation outcomes are also likely to influence newcomers' proactivity. Consider the relationship between technical information seeking (a proactivity) and task mastery (an adaptation outcome). On the basis of the argument that the more frequently newcomers sought information about how to perform their job (i.e., technical information), the more effectively they will master their job tasks, Morrison (1993a) and Smith (1993) predicted that task mastery would be positively

related to the extent to which newcomers sought technical information from coworkers. However, the findings in both studies were contrary to prediction. Both studies found that task mastery was negatively related to the extent to which newcomers sought technical information from coworkers. Morrison (1993a) speculated that the negative relationship may be because the more doubtful newcomers were about their task competence, the more frequently they ask their coworkers for technical information. That is, task mastery may influence technical information seeking so that a negative relationship is observed between task mastery and technical information seeking.

It is likely that the relationship between task mastery and technical information seeking can either be positive or negative, partly because the two variables are likely to have reciprocal effects on each other. It seems plausible that the more I have mastered my job tasks, the less frequently I need to seek technical information (hence, a negative relationship). It is also equally plausible that the more technical information I have acquired, the more I am able to master my job tasks (hence, a positive relationship). Similar reciprocal effects between proactivity and adaptation outcome are likely to exist for the relationship between referent information seeking and role clarity and the relationship between relationship building and social integration. To achieve role clarity, the newcomer requires referent information, that is, information about expected role behaviors (Feldman, 1976, Graen, 1976). Morrison (1993a) found that role clarity and referent information seeking were positively associated. The assumption here is that referent information seeking affects role clarity in that the more referent information I

have acquired, the clearer I am about my role. But it is equally plausible that role clarity influences referent information seeking in that the clearer I am about my role, the less need I have to seek referent information. Social integration is clearly a process of building relationships with coworkers. To achieve social integration, the newcomer has to build relationships with coworkers. The assumption here is that relationship building affects social integration in that the more relationships I have built with coworkers, the more socially integrated I become. But it is equally plausible that social integration influences relationship building in that the more socially integrated I am, the less need I have to build relationships with my coworkers. The potential reciprocal effects between proactivity and adaptation outcomes have not been directly examined in empirical research on newcomer adaptation and they are not readily addressed in current study designs. Conceptualizing and testing the relationship between a proactivity and an adaptation outcome is difficult when the change trajectories of the two focal variables are not explicitly taken into account in conceptualization and assessment. The precise nature of the relationship between a proactivity and an adaptation outcome is likely to be dependent on whether we are referring to each variable at the point of organization entry, at the end of the transition period, or in terms of its rate of change over the transition period. Specifying hypotheses relating proactivity and adaptation outcomes and testing them in terms of within-time measurement and across-time measurement helps clarify the nature of the newcomer adaptation process.

Prior to examining the time-sensitive relationships between proactivity and adaptation outcomes, the nature of the change trajectories of the adaptation outcome variables must first be specified (hypotheses concerning the nature of the change trajectories of three proactivities in the present study have been specified earlier). Over time, task mastery should increase as newcomers learn how to perform their jobs, role clarity should increase as newcomers learn what their supervisors expect of them in their jobs, and social integration should increase as newcomers develop personal relationships with their coworkers and become more integrated into their work group. Hence, it was predicted that

Hypothesis 6a: Over time, task mastery will increase.

Hypothesis 6b: Over time, role clarity will increase.

Hypothesis 6c: Over time, social integration will increase.

At the point of organizational entry, there is no theoretical reason to link any of the three proactivity variables to task mastery, role clarity, or social integration. However, the extent of a proactive behavior at the point of organizational entry may predict the rate of change in an adaptation outcome variable. In the present study, this association between proactivity at initial status and rate of change in adaptation outcome was expected to apply to the relationship between technical information seeking and task mastery, the relationship between referent information seeking and role clarity, and the relationship between relationship building and social integration. The extent of technical information seeking at the point of organizational entry may be positively correlated with

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the rate of increase in task mastery over the transition period. Because the same technical information is likely to be useful for a number of different job tasks, newcomers who acquired more technical information early in the transition period should increase their task mastery over time at a faster rate. Similarly, the extent of referent information seeking from supervisors at the point of organizational entry may be positively correlated with the rate of increase in role clarity over the transition period. Because the same referent information from supervisors is likely to be useful for understanding a number of different expected role behaviors, newcomers who acquired more referent information early in the transition period should increase their role clarity over time at a faster rate. Finally, the extent of relationship building with coworkers at the point of organizational entry may be positively correlated with the rate of increase in social integration over the transition period. A personal relationship with a coworker is likely to be useful as a bridge to building relationships with other coworkers. Therefore, relative to those who build relationships to a smaller extent, newcomers who built relationships to a larger extent early in the transition period should increase their social integration over time at a faster rate. Hence, it was predicted that

> Hypothesis 7a: The extent of technical information seeking from coworkers at the point of entry will be positively correlated with the rate of increase in task mastery.
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> Hypothesis 7b: The extent of referent information seeking from supervisors at the point of entry will be positively correlated with the rate of increase in role clarity.

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Hypothesis 7c: The extent of relationship building with coworkers at the point of entry will be positively correlated with the rate of increase in social integration.

As mentioned earlier, an important adaptation question concerns how change trajectories of adaptation outcomes are associated with change trajectories of proactivity. To date, no empirical research has directly examined such associations. The present study examined three such associations. First, as I have argued earlier when explicating the rationale for Hypothesis 2a, the extent of technical information seeking may decrease over time because task mastery increases. Relative to those who master their job tasks slower over time, newcomers who master their job tasks faster over time should have a lesser need to ask their coworkers how to perform job tasks. Second, recall that it was predicted that over time, the extent to which newcomers ask supervisors for referent information will increase (Hypothesis 2d), presumably because over time newcomers become more concerned with performance evaluation (Katz, 1980; Morrison, 1993b). Although referent information seeking and role clarity are expected to increase over time, interindividual differences in the rate of increase may be negatively correlated between the two variables. This is because relative to those who achieve role clarity slower over time, newcomers who achieve role clarity faster over time should have a lesser need to ask their supervisors for referent information. Third, recall that it was predicted that over time, the extent to which newcomers build relationships with coworkers will decrease (Hypothesis 3), presumably because over time newcomers become more concerned with performance evaluation and less concerned with fitting in (Katz, 1980; Morrison, 1993b).

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Although relationship building is expected to decrease and social integration is expected to increase over time, interindividual differences in the rate of decrease in relationship building may be positively correlated with interindividual differences in the rate of increase in social integration. This is because relative to those who achieve social integration slower over time, newcomers who achieve social integration faster over time should have a lesser need to build relationships with coworkers. Hence, it was predicted that

Hypothesis 8a: The rate of increase in task mastery will be positively correlated with the rate of decrease in technical information seeking from coworkers.

Hypothesis 8b: The rate of increase in role clarity will be negatively correlated with the rate of increase in referent information seeking from supervisors.

Hypothesis 8c: The rate of increase in social integration will be positively correlated with the rate of decrease in relationship building with coworkers.

Taken together, Hypotheses 7 and 8 specified how proactivity and adaptation outcomes can be either positively or negatively correlated depending on whether the variables are conceptualized and measured within-time or across-time. The two sets of hypotheses together assumed that proactivity and adaptation outcomes can have reciprocal effects on each other. Hypothesis 7 assumed proactivity can influence adaptation outcomes whereas Hypothesis 8 assumed adaptation outcomes can influence proactivity.

The present study examined whether the dispositional variable proactive personality and the background variable previous transition experience could predict the rate of increase in an adaptation outcome variable over the transition period and the same variable assessed at the end of the transition period. Because newcomers high on dispositional proactivity are likely to seek more technical information early in the transition period (Hypothesis 4a), they are likely to master their job tasks at a faster rate than those low on dispositional proactivity because, as predicted in Hypothesis 7a, the extent of technical information seeking at initial status is expected to positively influence the rate of increase in task mastery. Similarly, because newcomers with more previous transition experiences are likely to seek more technical information early in the transition period (Hypothesis 5a), they should be more likely to master their job tasks at a faster rate than those with less previous transition experiences. Hence, it was predicted that

Hypothesis 9a: Proactive personality will be positively correlated with the rate of increase in task mastery.

Hypothesis 9b: The relationship between proactive personality and rate of increase in task mastery is mediated by the extent of technical information seeking from coworkers at the point of organizational entry.

Hypothesis 9c: The amount of previous transition experience will be positively correlated with the rate of increase in task mastery.

Hypothesis 9d: The relationship between previous transition experience and rate of increase in task mastery is mediated by the extent of technical information seeking from coworkers at the point of organizational entry.

Relative to those who are low in dispositional proactivity, newcomers who are high in dispositional proactivity are likely to increase role clarity over time at a faster rate because high proactive newcomers are expected to seek more referent information from supervisors at the point of organizational entry (Hypothesis 4b) and the extent of referent information seeking from supervisors at the point of organizational entry is expected to positively influence the rate of increase in role clarity over the transition period (Hypothesis 7b). Similarly, newcomers with more previous transition experiences are likely to seek more referent information early in the transition period (Hypothesis 5b), they should be more likely to achieve role clarity at a faster rate than those with less previous transition experiences. Hence, it was predicted that

Hypothesis 10a: Proactive personality will be positively correlated with the rate of increase in role clarity.

Hypothesis 10b: The relationship between proactive personality and rate of increase in role clarity is mediated by the extent of referent information seeking from supervisors at the point of organizational entry.

Hypothesis 10c: The amount of previous transition experience will be positively correlated with the rate of increase in role clarity.

Hypothesis 10d: The relationship between previous transition experience and rate of increase in role clarity is mediated by the extent of referent information seeking from supervisors at the point of organizational entry.

Relative to those who are low in dispositional proactivity, newcomers who are high in dispositional proactivity are likely to increase social integration over time at a faster rate because high proactive newcomers are expected to build relationships with coworkers to a larger extent at the point of organizational entry (Hypothesis 4e) and the extent of relationship building with coworkers at the point of organizational entry is expected to positively influence the rate of increase in social integration over the transition period (Hypothesis 7c). Similarly, because newcomers with more previous transition experiences are likely to build relationships with coworkers to a larger extent early in the transition period (Hypothesis 5c), they should be more likely to achieve social integration at a faster rate than those with less previous transition experiences. Hence, it was predicted that

Hypothesis 11a: Proactive personality will be positively correlated with the rate of increase in social integration.

Hypothesis 11b: The relationship between proactive personality and rate of increase in social integration is mediated by the extent of relationship building with coworkers at the point of organizational entry.

Hypothesis 11c: The amount of previous transition experience will be positively correlated with the rate of increase in social integration.

Hypothesis 11d: The relationship between previous transition experience and rate of increase in social integration is mediated by the extent of relationship building with coworkers at the point of organizational entry.

Although there is practical value to examine whether an adaptation outcome assessed at the end of the transition period could be predicted from proactive personality, no formal hypothesis was formulated because of the lack of a clear theoretical basis for the relationship. The present study explored (1) the possibility that rate of increase in an adaptation outcome and the same outcome assessed at the end of the transition period are correlated and (2) the possibility that proactive personality could predict an adaptation outcome assessed at the end of the transition period over any predictability already provided by rate of increase in the same outcome.

Newcomers with more previous transition experiences should be more equipped to adapt to the demands created by uncertainties and changes in the new environment and therefore more likely to effectively learn how to master their job tasks, achieve a clear understanding of their role expectations, establish personal relationships with coworkers and achieve integration with the work group. Hence, it was predicted that

Hypothesis 12: The amount of previous transition experience will predict an adaptation outcome, (a) task mastery, (b), role clarity, (c) social integration, assessed at the end of the transition period over any predictability already provided by rate of increase in the same outcome.

To summarize, the present study first generated several hypotheses about the basic nature of three newcomer proactivities (technical information seeking, referent information seeking, relationship building) focusing on the intraindividual changes over time at the group level (Hypotheses 1 to 3). To examine systematic interindividual differences in the use/development of proactive behaviors, two time-invariant individual difference predictors (proactive personality and previous transition experience) were hypothesized to be related to the time-sensitive proactivity variables both at the point of entry and in terms of individual rate of change (Hypotheses 4 and 5). Next, the nature of the intraindividual changes in three adaptation outcomes (task mastery, role clarity, social integration) over time were specified at the group level (Hypothesis 6). Hypotheses regarding systematic interindividual differences in these intraindividual changes over time and their relationship to both the time-sensitive proactivity variables and time-invariant individual difference predictors were then presented (Hypotheses 7 to 12).

Distal Adaptation Outcomes

Three traditional socialization outcomes commonly examined in the socialization literature were also included in the present study to enable comparisons to be made between the present findings and findings from previous research. The variables were overall job performance, overall job satisfaction, and organizational commitment. Professional commitment, which may be construed as another distal adaptation outcome variable, was also assessed because of its relevance to the nature of the sample in the present study. No formal hypotheses were specified concerning these variables for two

reasons. First, as mentioned earlier, these traditional variables are better construed as distal than proximal adaptation outcomes of proactivity. These variables are only distally related to newcomer proactivity and there are a host of other intervening variables and antecedent variables related to these variables. Second, there is some evidence that newcomers' responses on affective measures such as job satisfaction and organizational commitment could undergo different forms of reconstitution including beta and gamma changes (Golembiewski, Billingsley, & Yeager, 1976) over the organizational entry period (Schaubroeck & Green, 1989; Vanderberg & Self, 1993). For example, using data collected over three time waves (with 3-month intervals) from newly hired employees of a banking institution, Vanderberg and Self (1993) found that responses on organizational commitment measures underwent dramatic changes over time in the underlying construct (gamma change) that rendered the pattern of mean differences uninterpretable. It is not the purpose of the present study to examine beta and gamma changes in newcomers' responses affective measures. Instead, the study explored whether these distal adaptation outcomes measured at the end of the transition period could be predicted from the newcomer characteristics (i.e., proactive personality, previous transition experience, background variables), proactivity variables, and proximal adaptation outcome variables examined in the study. The possibility that proximal adaptation outcomes partially mediate the relationships between proactivity variables and distal adaptation outcomes was also explored.

Single Source Bias and Inflated Ratings in Self-Reported Adaptation Outcomes

Although some studies have used objective indicators or supervisory or peer ratings of performance (e.g., Adkins, 1995; Bauer & Green, 1994; Morrison, 1993b; Saks, 1995; Saks & Ashforth, 1996), most research on socialization and newcomer adaptation has assessed adaptation outcomes (proximal or distal) using newcomer self-reported ratings. An ubiquitous concern with the sole reliance on self-report data has been the issue of common method variance due to single source bias. Although the primary interest in the present study was in newcomer perceptions and intraindividual changes in these perceptions and hence the collection of self-report data was justified, supervisory ratings of both proximal and distal adaptation outcomes were also collected and examined to address the single source bias issue. In addition, comparisons between supervisory ratings and newcomer self-reported ratings allowed an evaluation of possible inflations of ratings on adaptation outcomes by newcomers.

Other Exploratory Questions

Finally, the present study explored whether changes in proactivity and adaptation outcome variables were predictable from newcomer background characteristics including gender, age, student status (domestic versus foreign), Graduate Record Examination (GRE) scores, whether the student held a graduate assistantship, whether the student was employed in a job (other than a graduate assistantship), and whether the student was enrolled in a program that required a research project (i.e., thesis or dissertation study). Because these examinations were exploratory, no formal hypotheses were specified.

These exploratory examinations also allowed an assessment of discriminant validity among the different focal change variables (i.e., proactivities and adaptation outcomes) in the study; that is, differential patterns of relationships with these background variables across the focal change variables would provide evidence that change trajectories of distinct constructs were being examined in the study.

Chapter 2

METHOD

Participants and Procedure

Power analyses were performed on all hypotheses to estimate the required sample size for the study. Using repeated measures regression analysis to detect the interaction predicted in Hypothesis 1, a power analysis that assumed a small effect size (Cohen & Cohen, 1983) for the interaction (corresponding to a $\Delta R^2 = .03$), a power of .80, and a significance level of .05, revealed that a sample size of 60 (corresponding to 240 observations in the 2 X 2 repeated measures design) was required at Time 1. The LGM analyses were performed within a structural equation modeling framework. Sample size requirements for accurate estimation of the standard errors of the indirect (mediated) effects in structural equation modeling are not well understood (Finch, West, & MacKinnon, 1997). However, because the present LGM analyses always amount to testing some direct effect of a predictor variable on a criterion variable in the presence of the effects of other predictor variables on the same criterion variable, the tests are analogous to a test of incremental variance in hierarchical regression analysis. Hence, to obtain a sample size estimate required for detecting a direct effect in LGM analyses, a power analysis based on hierarchical regression analysis was performed for each relevant hypothesis (Hypotheses 2 to 11). The analysis revealed that, assuming a small effect size corresponding to a direct effect of .25, a power of .80, and a significance level of .05, a sample size of 116 was required for participants with complete data for all four time

waves. Similarly, the same sample size of 116 participants with complete data for all four time waves was required to detect the incremental validity relationship predicted in Hypothesis 12 (using hierarchical regression analysis) on the basis of a power analysis that assumed a relatively small effect size corresponding to an incremental validity of .25, a power of .80, and a significance level of .05. Because of the uncertainty in the response rate over multiple repeated measurements, it was decided that as large a sample size as possible was desirable in the initial measurement at Time 1.

Data were collected from first year graduate students at the end of their first month (Time 1) after entering a doctoral program in a large Midwestern university and again at three different time periods (Time 2, Time 3, Time 4) equally spaced with 1-month intervals. That is, a four-wave longitudinal design in which the number and spacing of assessments were the same for all individuals was employed to collect the "time-structured" data (Bock, 1979). Note that the period of measurement corresponded to the entire academic semester which was used in the present study to define the transition period during organization entry. Participation in the study was voluntary. At each of the four measurement occasions, participants were told in the questionnaire instructions that the purpose of the study was to examine new graduate students' activities in and perceptions of their new environment. Participants were told to write their names on the questionnaire so that their responses could be matched across time waves and they were assured of the confidentiality of their responses. In order to get a heterogeneous sample that is not restricted to specific disciplines of study and to secure as large a sample

size as possible in initial measurement, graduate students from all departments in the university were invited to participate. Participants received a mailed questionnaire at each time wave. Of all 762 new entrants who received the questionnaire at Time 1, 207 responded (27.2%). This response rate is similar to those typically reported in empirical studies on newcomer socialization (e.g., Ashford & Black, 1996; Morrison, 1993b; Schaubroeck & Green, 1989; Vanderberg & Self, 1993). One hundred and eighty-two of the Time 1 respondents responded at Time 2 (87.9%), 166 of the Time 2 respondents responded at Time 3 (91.2%), and 146 of the Time 3 respondents responded at Time 4 (88.0%). That is, a total of 146 from the 207 new entrants who agreed to participate in the study (i.e., at Time 1) responded in all four measurement periods (70.5%). Because of the high response rate at each consecutive time point, only the data from the 146 participants who responded at all four time points were used in the analyses.

Measures of newcomer background characteristics (see description below) and the two individual difference predictor measures assessing proactive personality and previous transition experience, respectively, were administered at Time 1 only. All other measures (i.e., proactivity and adaptation outcome variables as described below) were administered at each of the four time waves. At Time 4, each participant also received a faculty member questionnaire and the participant was asked to request that his or her advisor or primary faculty member complete the questionnaire anonymously. The questionnaire asked the faculty member to rate the students on several adaptation outcomes (see description of measures below). A total of 78 faculty questionnaires were returned.

Because a total of 166 faculty questionnaires were provided to participants with the Time 4 questionnaire, the faculty response rate was estimated as 47.0%. Note that this is an underestimate because some participants might not have given the questionnaire to their faculty members. Of the 78 faculty questionnaires returned, 68 were used in the analyses because the remaining 10 questionnaires referred to newcomers who did not return the Time 4 questionnaire. To examine if there are any systematic differences between the group of newcomers that had completed faculty questionnaires ($n = 68$) and the remaining group of newcomers in the final sample ($n = 146 - 68 = 78$) that did not, the standardized mean difference, d, between the two groups was computed for each of the measures completed by newcomers in all four occasions of measurement (i.e., Variables 1 to 57 in Table 1). This d statistic was computed by dividing the difference of the two group means by the pooled standard deviation. The 57 d's ranged from −.28 to +.40 with a mean of +.09 suggesting that there was no systematic difference between the two groups.

Individual Predictor Measures

Proactive personality. Proactive personality was assessed using Bateman and Crant's (1993) 17-item Proactive Personality Scale. Responses are indicated on a 7-point Likert-type scale ranging from strongly disagree (1) to strongly agree (7). Responses are summed across items to yield a total score for proactive personality. Example items are "I excel at identifying opportunities", "No matter what the odds, if I believe in something I will make it happen", and "If I see something I don't like, I fix it" (see Appendix A for

complete measure). Bateman and Crant reported three studies assessing the measure's psychometric properties. Internal consistency estimates of reliability (Cronbach's alphas) ranged from .87 to .89 and factor analyses across three samples provided evidence supporting the measure's unidimensionality. Scores on the measure were also correlated with involvement in proactive community service activities, the degree of constructive environmental change revealed in essays of participants' most significant personal achievements, and with peer ratings of transformational leadership. Crant (1995) examined correlations between scores on the Proactive Personality Scale and the Big-Five personality factors as measured by the NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). Scores on the Proactive Personality Scale were correlated .26 with Conscientiousness, .35 with Extraversion, -.12 with Neuroticism, .18 with Openness to Experience, and -.09 with Agreeableness. Scores on the Proactive Personality Scale were correlated .09 with scores on the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960). Hence, there is some evidence of convergent and discriminant validity for the Proactive Personality Scale.

Previous transition experience. A 7-item measure was developed for the present study to assess the amount of previous experience newcomers have with major transitions or changes in their environment that involve facing uncertainty and new demands or challenges. Each item asked the participant how frequent a given event has occurred for him or her. An example item is "How many different cities have you lived in (for more than one month) since you graduated from high school?" For every item, participants

indicated the frequency of the event on a 5-point scale corresponding to given frequencies or frequency intervals (see Appendix B for complete measure).

Proactivity Measures

Technical and referent information seeking. Information seeking was assessed using a 8-item measure consisting of items I adapted from Ashford (1986), Morrison (1993b), and Smith (1993). There were four items on technical information seeking and four items on referent information seeking. Each item was repeated once because there were two information sources, coworkers (other graduate students) and supervisors (faculty members) so that participants were asked to complete a total of 16 information seeking items. Participants were asked to indicate the frequency with which they had asked their other graduate students (or faculty members) for certain technical information. To provide a common frame of reference, participants were told at the beginning of the questionnaire that the term "work" refers to all aspects of the tasks and duties in their academic work as a graduate student which include those associated with their coursework, work as a teaching assistant, and work as a research assistant/researcher. An example item on technical information seeking from coworkers is "How frequently do you ask other graduate students how to perform specific aspects of your work?" An example item on referent information seeking from supervisors is "How frequently do you ask faculty members what is expected of you in your work?" Morrison's (1993b) 7-point response format based on objective units of time was used (1 = never, 2 = once a month, 3 = a few times a month, 4 = once a week, 5 = a few times a week, 6 = once a day,

7 = a few times a day). As noted by Morrison, the advantage of this format over the typical scale that ranges from "very infrequently" to "very frequently" was that it standardized responses across individuals and provided information about the actual frequency with which different types of information were sought. The complete information seeking measure is shown in Appendix C.

Relationship building. Relationship building with coworkers was assessed using a 4-item measure I adapted from Ashford and Black's (1996) General Socializing Scale and Networking Scale. Example items are "To what extent have you tried to socialize with other graduate students in your program?" and "To what extent have you attended social gatherings organized by other graduate students in your program (e.g., parties, dinners, going to movies)?" A 5-point Likert-type response format ranging from to no extent (1) to to a great extent (5) was used. The complete measure is shown in Appendix C.

Proximal Adaptation Outcome Measures

Task mastery, role clarity, social integration. Task mastery, role clarity, and social integration were each assessed using a 4-item measure I adapted from Ashford (1986) and Morrison (1993b). Example items for task mastery, role clarity, and social integration were, respectively, "I feel competent performing my work tasks", "I have useful information about how my performance will be evaluated", and "Other graduate students in the program seem to accept me as one of them". For all three measures, a 5-

point Likert-type response format ranging from strongly disagree (1) to strongly agree (5) was used. All three complete measures are shown in Appendix D.

Distal Adaptation Outcome Measures

Overall job performance, overall job satisfaction, organizational commitment, professional commitment. Using a 4-item measure, participants were asked to rate their work performance relative to other graduate students on a percentage basis using a 5-point response format (1 = below or equal to 20th percentile, 2 = 21st to 40th percentile, 3 = 41st to 60th percentile, 4 = 61st to 80th percentile, above or equal to 80th percentile). Each item represented a performance dimension (e.g., "overall work quality", "achievement of work goals") that was sufficiently general so that it was maximally applicable to graduate students in various departments. A 3-item measure was developed for the present study to assess overall job satisfaction. An example item is "I am very satisfied with the kind of work I do in my work as a graduate student." The wording of the items were phrased at a general level so that overall job satisfaction was maximally comparable for graduate students across departments. Organizational commitment was assessed using a 8-item measure I adapted from Mowday, Steers, and Porter (1979). Similar adaptations of Mowday et al.'s measure were employed in previous socialization research (e.g., Ostroff & Kozlowski, 1992; Saks, 1995). All items used the doctoral program as the referent of commitment. An example item is "I am glad to tell others that I am part of this doctoral program." Professional commitment was assessed using the same items in the present measure for organizational commitment but instead of "the

doctoral program", "my profession" was used as the referent of commitment. A 5-point response format ranging from strongly disagree (1) to strongly agree (5) was used for the measures of overall job satisfaction, organizational commitment, and professional commitment. All four complete measures are shown in Appendix E.

Background Characteristics

In addition to the above measures, the questionnaire administered at Time 1 also asked participants to provide information on their gender, ethnic status, age, student status (domestic or foreign student), the nature of the graduate assistantship (if any) they were holding, whether they were employed in a job (and if so, part time or full time) that was not their graduate assistantship, and whether they were enrolled in a program that required the completion of a research project (thesis or dissertation study) to obtain the degree they were pursuing. Appendix F presents the items assessing background characteristics. At Time 1, consent from participants was also obtained for the University to release to the author their GRE scores for the purpose of this study.

Faculty Member Questionnaire

In the faculty member questionnaire, the faculty member respondent was asked to rate the student on his or her task mastery, role clarity, overall job performance, and overall job satisfaction using measures similar to those described above. In addition, the faculty member respondent rated the student on a 3-item measure of organizational commitment and a 3-item measure of professional commitment each adapted from the

respective 8-item measure described above. The complete faculty member questionnaire is shown in Appendix G.

Latent Growth Modeling and Data Analyses

Latent growth modeling (LGM) analysis provides a systematic way of modeling interindividual differences in the attributes (i.e., parameters) of individual change trajectories (i.e., individual growth curves). For example, in a simple straight-line growth model, the two important attributes of the variable's change trajectory are the intercept and the slope. With respect to the present research hypotheses, the intercept corresponds to the "initial status" of the variable, that is, the value of the variable at the point of organizational entry. The slope corresponds to the "rate of change" in the variable, that is, the rate of increase or decrease over the transition period. The task in the LGM analysis involves identifying an appropriate growth curve form that accurately and parsimoniously describes intraindividual change over time (at the group level of analysis) and allows the examination of interindividual differences in the parameters (intercept and slope) that control the pattern of intraindividual change over time (at the individual level of analysis). The LGM analysis can be used to estimate the means and variances of the two parameters and examine if the two parameters are correlated with each other. The LGM analysis can also be used to examine associations between the growth parameters and individual difference predictor variables. Different univariate latent growth models can also be combined to form a multivariate latent growth model. In a multivariate growth model, parameters from different change trajectories can be correlated to examine

cross-domain associations. Hence, hypotheses concerning initial status and rate of change of the same or different variables can be tested. Finally, multiple-group LGM analyses can be performed to test for invariance of the various relationships specified in the model. The following are details concerning the basic form of the latent growth models analyzed in the present study.

The LGM approach used here is presented in more technical detail in Meredith and Tisak (1990), Muthen (1991), and Stoolmiller (1994). Applications of the approach can be found in Duncan and Duncan (1994), Duncan, Duncan, and Stoolmiller (1994), and McArdle and Epstein (1987). The model depicted in Figure 2 represents the basic form of a univariate latent growth model in which the two parameters, intercept and slope, describe a systematic pattern of individual differences in intraindividual change over time. Figure 2 shows the model for a focal variable (e.g., referent information seeking) measured at four points in time (Y1, Y2, Y3, Y4) equally spaced at 1-month intervals. As shown in the figure, the latent growth model resembles the classic confirmatory factor analysis. However, because repeated measures raw-score data are used, the latent factors are actually interpreted as chronometric (time) common factors representing individual differences over time (McArdle, 1988). Repeated measures polynomial ANOVA models are actually special cases of LGMs in which only the factor means are of interest (Meredith & Tisak, 1990). The LGM analysis takes into account both factor means and factor variances; hence, it integrates both the group and individual levels of analysis in a unified modeling procedure.

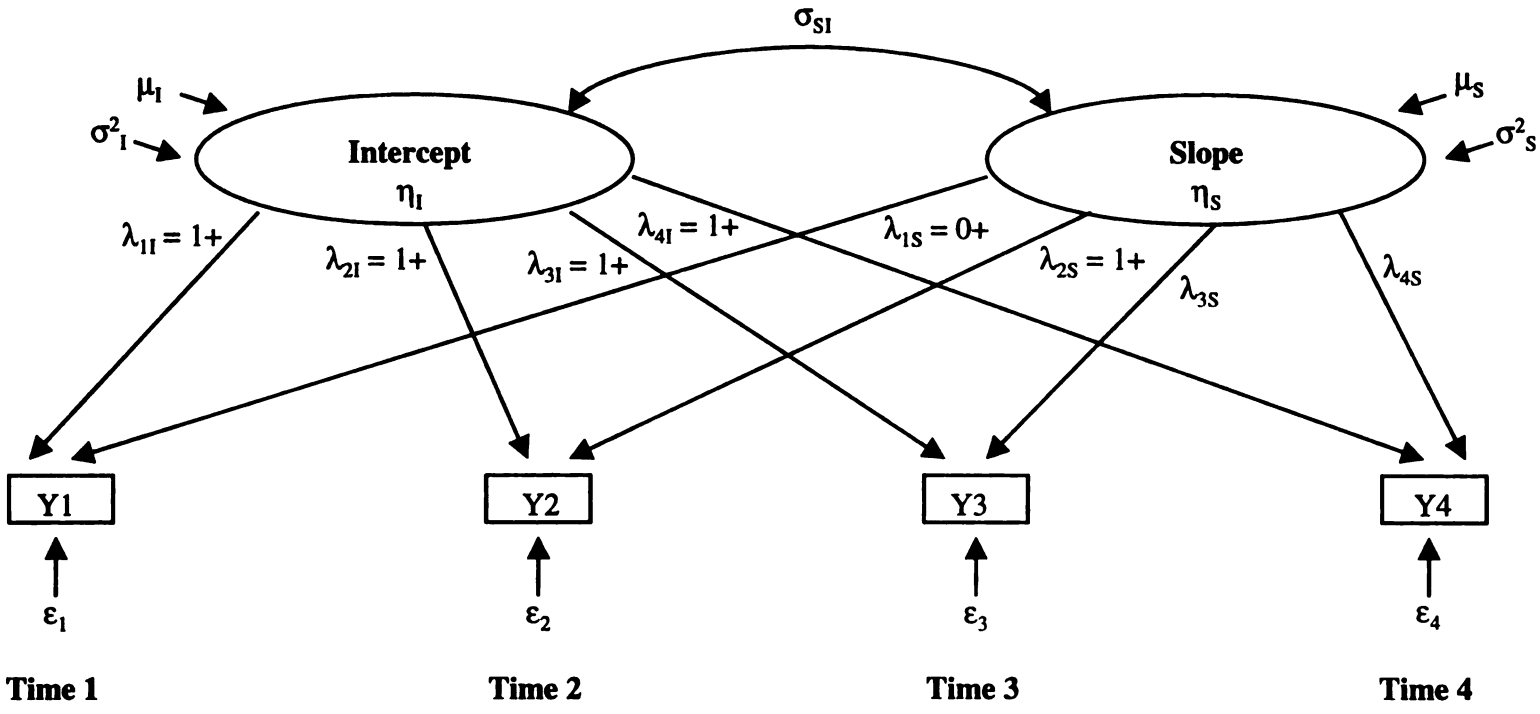


Figure 2 - Representation of a Basic Latent Growth Model.
Note. A parameter value with a plus sign indicates that the parameter is fixed at that value.

Using LISREL notation, the first growth factor, labeled Intercept, η_I, is a constant for any given individual across time; hence, the fixed values of 1.0 for factor loadings (i.e., λ_{1I} to λ_{4I}) on the repeated measures. The intercept factor represents information about the mean, μ_I, and variance, σ^2_I, of the collection of individual intercepts of each individual's growth curve. The second growth factor, labeled Slope, η_S, represents information about the mean, μ_S, and variance, σ^2_S, of the collection of individual slopes of each individual's growth curve. Both growth factors, which are estimated from the data, are allowed to covary (estimated as σ_{SI}) as indicated by the double-headed curved arrow between the factors. The ε's represent error variances in the repeated measures. As in the case of standard structural equation modeling analyses, provided the model is identified, the error variances can either be freely estimated or fixed at certain values. They can also be constrained to be equal across repeated measurements. Similarly, any of the six error covariances can either be freely estimated or fixed at certain values including zero.

The scaling of the slope can be controlled by the choice of the slope factor loadings (i.e., λ_{1S} to λ_{4S}). Changing the slope factor loadings simply rescales the slope factor mean and variance by constants and it does not change the fundamental meaning or affect the significance tests of the slope parameters. However, the intercept factor is inextricably bound to the time scale. Changing the slope factor loadings alters the time scale and in turn affects the meaning and interpretation of the intercept factor mean and variance. For the present study, the intercept factor is used to represent initial status assessed at the first time wave and hence, it should be located at Y1. Meredith and Tisak

(1990) have shown that at least two slope factor loadings must be fixed to two different values to identify the model. By fixing the slope factor loading of Y1 and Y2 to 0 and 1.0, respectively, the intercept will be located at the initial measurement, Y1. The remaining two slope factor loadings can either be freely estimated or fixed to specific values. Freely estimating the remaining two loadings amounts to modeling unspecified trajectories where the shape of the trajectory is allowed to be determined by data (such a model is referred to as the unspecified two-factor model). In such a model, the slope factor is better interpreted as a general shape factor. The loadings plotted against the observed time metric gives a visual representation of the nature or shape of the change trajectory. If the model fits well, the size of the factor loadings reflects the size of the means of the observed variables. Model fit is assessed using the various model fit indices in structural equation modeling. Note that freely estimating factor loadings beyond those required for model identification results in a form of growth function with maximal fit to the data. But more parsimonious functional forms may also provide a good model fit. For example, a trajectory in the form of a linear change can be hypothesized by fitting a model that specified the slope factor loadings to be 0, 1.0, 2.0, and 3.0, for Y1, Y2, Y3, and Y4, respectively. Because this linear factor model is nested within the unspecified two-factor model, the two models can be compared for incremental fit using the chi-square difference test for nested model comparisons in structural equation modeling.

The basic latent growth model in Figure 2 can be respecified to include time-invariant individual predictors of change. The respecified model is similar to the basic

model except that it also estimates the effects of individual predictors on the intercept and/or slope factors. Figure 3 depicts an example of a respecification of the basic model in Figure 2. In this respecified model, the effects (γ's) of two individual difference variables (time-invariant individual predictors), proactive personality and previous transition experience, on the intercept factor and slope factor of the referent information seeking trajectory are freely estimated. Note that more predictors such as newcomer background variables (e.g., gender, age) can be included in the model. The respecified model allows tests of hypotheses about associations between individual predictors and individual differences in initial status (intercept) and rate of change (slope).

The models depicted in Figures 2 and 3 are univariate latent growth models. Multivariate latent growth models can be fitted by simply combining two or more univariate models thereby allowing the estimation of correlations between intercept/slope factors from different change trajectories (e.g., technical information seeking trajectory and task mastery trajectory). Hence, hypotheses about cross-domain relationships between attributes of change trajectories can be tested. For example, the cross-domain relationship specified in the hypothesis stating that the rate of increase in task mastery will be positively correlated with the rate of decrease in technical information seeking from coworkers (Hypothesis 8a) can be tested by assessing the latent correlation between the slope factor in the latent growth model of task mastery and the slope factor in the latent growth model of technical information seeking.

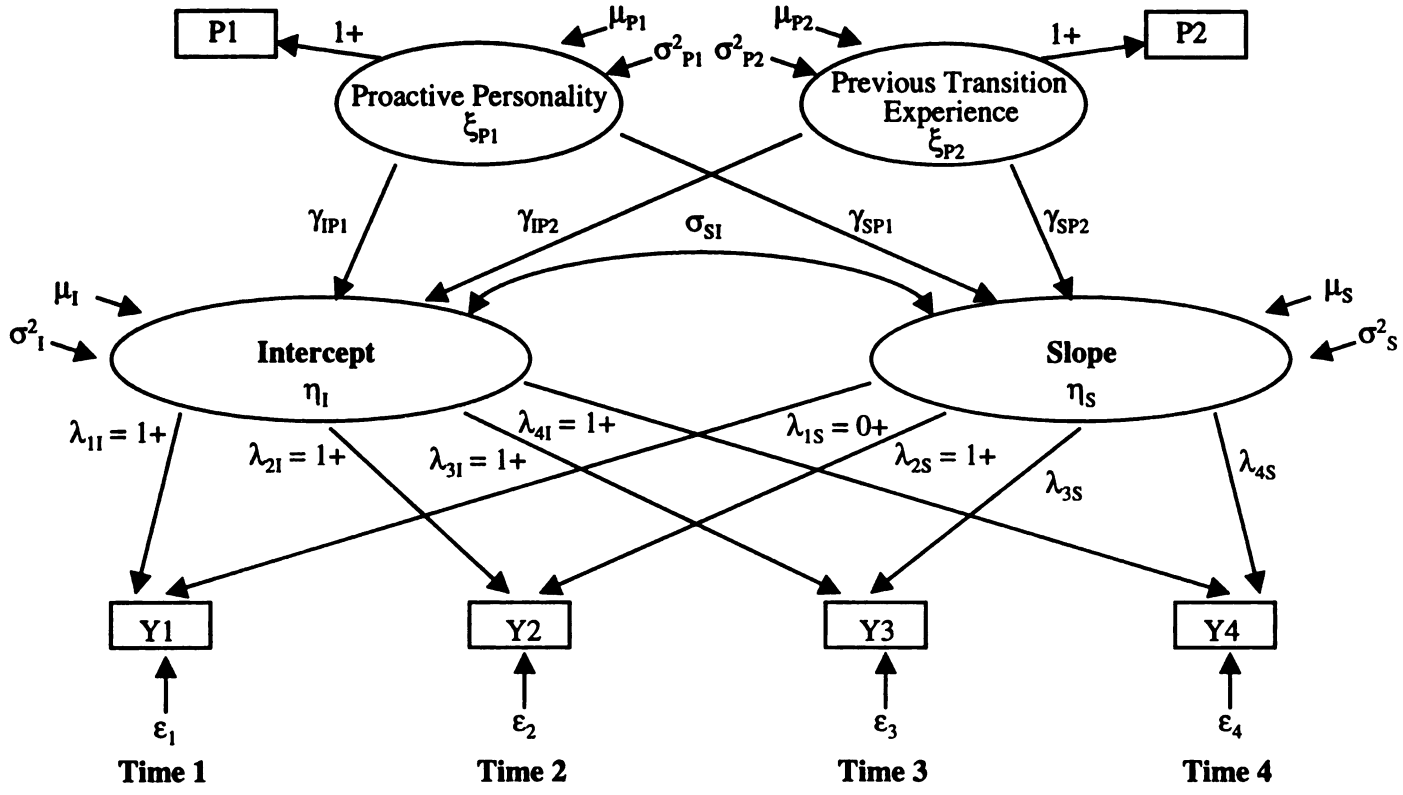


Figure 3 - Representation of a Latent Growth Model with Individual Predictors.

Note. A parameter value with a plus sign indicates that the parameter is fixed at that value. σ^2_I and σ^2_S are unconditional variances that are not an explicit part of this growth model (because the model includes predictors) but they are output by LISREL 8 as part of the default Covariance Matrix of Eta and Ksi. For ease of presentation, residual growth factor covariances, ϕ's, are not presented.

Finally, latent growth models (univariate or multivariate) can be fit simultaneously to different subgroups of individuals and multiple-group structural equation analysis can be performed to test for across-groups invariance of one or more of the specified relationships in the model.

In the present study, the interaction predicted in Hypothesis 1 was tested using repeated measures regression analysis. Hypotheses 2 to 11 were tested with latent growth modeling using the LISREL 8 structural equation modeling program (Joreskog & Sorbom, 1993). For all latent growth models reported in this study, five widely used model fit indices were used to assess model fit. They were Joreskog and Sorbom's (1989) adjusted-goodness-of-fit index (AGFI), Bentler and Bonett's (1980) non-normed fit index (NNFI), Bentler's (1990) comparative fit index, Joreskog and Sorbom's (1986) standardized root mean square residual (SRMR), and Steiger's (1990) root mean square error of approximation (RMSEA). The values of AGFI, NNFI, and CFI range from 0 to 1 with values approaching 1 indicating a good fit to the data. the convention of above .90 was adopted here as an indication of good fit. The SRMR is a measure of the average standardized residuals of the predicted covariance matrix from the observed covariance matrix. Values approaching 0 indicate a good fit to the data. The conventional value of less than .10 was used here as an indication of good fit. The RMSEA is a measure of the average size of the fitted residuals per degree of freedom with values close to 0 indicating a good model fit. A RMSEA value of .10 or more is usually taken to indicate poor fit (see Browne & Cudeck, 1993). Following the current widely accepted practice in

structural equation modeling, all five model fit indices were used in evaluating each model to provide convergent validity evidence in model fit assessment. The chi-square difference test was used to assess statistical significance of incremental fit in nested model comparisons.

Hypotheses 2a-2d, 3, and 6 each specified the change trajectory of a single variable over time (decrease, increase, or constant) at the group level. Each of these hypotheses was tested by fitting a series of nested univariate latent growth models for the respective variable to establish the final model that most parsimoniously and adequately described the change trajectory. The direction of change, if any, was indicated by the latent mean of the slope/shape growth factor in the final model. A freely estimated slope/shape factor mean that was not significantly different from 0 indicated a constant (i.e., horizontal) trajectory over time. A freely estimated slope/shape factor mean that was significantly different from 0 provided evidence that change overtime occurred and the sign of the mean value indicated the direction of change (positive indicates increase; negative indicates decrease). Because subsequent hypotheses specified relationships concerning interindividual differences in intraindividual change, it was meaningful to test them only if it was first established that true individual difference differences in the relevant growth parameter existed. A freely estimated growth factor (i.e., intercept or slope/shape) variance that was significantly different from 0 provided evidence of true individual differences in that growth parameter.

Hypotheses 4a, 4b, 4c, 4e, 5a, 5b, 5c, 5d, 9a, 9c, 10a, 10c, 11a, and 11c each specified a bivariate association between an individual difference predictor and a focal change (proactivity or adaptation outcome) variable assessed either at the point of entry or in terms of its rate of change. Each of these hypotheses was tested by fitting the respecified univariate latent growth model of the relevant focal variable that included the relevant individual predictor. For each of the two individual predictors (i.e., proactive personality and previous transition experience), its error variance was fixed using its internal consistency estimate (Cronbach's alpha) of reliability; that is, using the formula: $\sigma^2_\varepsilon = (1 - r_{XX})\, \sigma^2_X$. A direct effect from the predictor to the relevant growth factor was specified and freely estimated provided the growth factor variance had been found to depart significantly from 0 in the univariate model (i.e., the basic model without predictors). The statistical significance and the size of the freely estimated coefficient associated with the structural path from the individual predictor to the growth factor (i.e., intercept or slope/shape factor) indicated the presence and strength, respectively, of the hypothesized relationship. Hypotheses 4d and 5e each specified a mediation relationship in which the relationship between the individual difference predictor and the rate of change in the focal variable is mediated by the focal variable as assessed at the point of entry. Note that these mediational hypotheses are dependent on first finding a bivariate relationship between the relevant individual predictor and rate of change (slope/shape factor) in the relevant focal variable. Hence, the hypotheses were tested only if the relevant prerequisite predictor-slope/shape factor hypothesized relationship was

supported. Testing these mediational relationships requires respecifying the univariate latent growth model so that there was a direct effect from the intercept to the slope/shape growth factor. The statistical significance and size of the freely estimated indirect effect from the individual difference predictor through the intercept factor to the slope/shape factor indicated the presence and strength, respectively, of the hypothesized mediation relationship.

Hypotheses 7a, 7b, 7c, 8a, 8b, and 8c each specified a bivariate association between the rate of change of an adaptation outcome variable and a proactivity variable (at point of entry or rate of change). Each of these hypotheses was tested by fitting a multivariate latent growth model consisting of intercept and slope/shape growth factors from the two relevant proactivity and adaptation outcome variables. The statistical significance and the size of the freely estimated coefficient for the relevant association (Hypotheses 7a, 7b, 7c: cross-domain intercept-slope; Hypotheses 8a, 8b, 8c: cross-domain slope-slope) indicated the presence and strength, respectively, of the hypothesized relationship. Hypotheses 9b, 9d, 10b, 10d, 11b and 11d each specified a mediation relationship in which the relationship between an individual difference predictor and the rate of change in an adaptation outcome variable is mediated by a proactivity variable assessed at the point of entry. As noted above, these mediational hypotheses are dependent on and hence only tested if there was an established relationship between the relevant individual predictor and the rate of change in the relevant adaptation outcome variable. Testing the mediational hypotheses involved

model respecification to include a direct effect from the intercept factor of the proactivity variable to the slope/shape factor of the adaptation outcome variable. The statistical significance and size of the freely estimated indirect effect from the individual predictor through the proactivity intercept factor to the adaptation outcome slope/shape factor indicated the presence and strength, respectively, of the hypothesized mediation relationship.

Finally, the incremental variance relationship predicted in Hypothesis 12 was tested using hierarchical regression analyses, regressing the relevant adaptation outcome assessed at the end of the transition period on its rate of change and previous transition experience.

To evaluate single source bias, correlational analyses were performed on each relevant proactivity and adaptation outcome variable to assess the association between newcomer self-reported responses and the independent ratings of newcomers obtained from faculty respondents. Paired-samples t-tests were performed to assess newcomer-faculty mean differences in ratings.

Hierarchical regression analyses were used to explore whether the four distal adaptation outcomes measured at the end of the transition period could be predicted from the background variables, proactive personality and previous transition experience, proactivity variables, and proximal adaptation outcome variables. The specific steps (i.e., entry order of variables) in the hierarchical regressions are described in detail in the

results section. Separate regressions were performed for newcomer self-reported ratings and supervisory ratings of each distal adaptation outcome.

To examine the exploratory questions concerning relationships between background characteristics and intraindividual change, the background variables were included together with proactive personality and previous transition experience as individual predictors in the latent growth model fit to the relevant focal change variable. Because the sample consisted of only 13 ethnic minority members (8.9%), ethnic status was excluded from all analyses. Due to the relatively small sample sizes in the subgroups formed according to background variables (e.g., 43 males; 24 foreign students), it was not statistically appropriate to perform multiple-group latent growth analyses because of the lack of power to detect between-group differences in parameter estimates.

Chapter 3

RESULTS

Frequency analyses showed that the final sample of 146 participants (i.e., those who provided data for all four occasions of measurement) consisted of 103 (70.5%) females and 122 (83.6%) domestic students. Of the 122 domestic students, 109 (89.3%) were White and 13 (10.7%) were from other different ethnic groups. As mentioned earlier, ethnic status was excluded from subsequent analyses because of the small number of ethnic minority members. The mean age of the sample was 25.74 years, SD = 3.38. Seventy-eight (53.4%) participants reported that they were on a graduate assistantship and 87 (59.6%) indicated that the completion of a research project (i.e. thesis or dissertation study) was part of their degree requirement. Seventy-seven (52.7%) participants reported that they were not employed in a job that was not their graduate assistantship, 39 (26.7%) reported that they were employed in one part-time job, 8 (5.5%) reported that they were employed in more than one part-time job, and 22 (15.1%) reported that they were employed in a full-time job.

Table 1 presents the means, standard deviations, intercorrelations, and reliabilities (Cronbach's alpha estimates) for all the study variables. As shown in the table, with the exception of the measure of previous transition experience (alpha = .64), all study variables have reasonably high reliabilities. In addition, the reliabilities of identical measures remained high and stable across time. An inspection of the bivariate correlations between the individual difference variables (the 7 background variables and

Table 1

Means, Standard Deviations, Reliabilities, and Intercorrelations of Study Variables (146 newcomers; 68 supervisors)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Gender	.71	.46	--																
2. Age	25.74	3.38	-.01	--															
3. StudStat	.16	.37	-.16	-.04	--														
4. GradAssist	.54	.50	-.08	.11	.06	--													
5. Outjob	1.62	.73	.14	.21	-.28	-.63	--												
6. ResearchReq	.60	.49	-.13	.15	.17	.33	-.32	--											
7. GRE	3.14	.98	-.20	-.07	.05	.14	-.17	.14	--										
8. ProactPer	3.70	.46	.13	.16	.03	.02	.05	.00	-.35	.86									

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
9. PrevTran	3.12	.81	.10	.50	-.38	.02	.14	.06	-.05	.17	.64								
10. CoTec(T1)	2.81	1.47	-.06	-.07	.23	.24	-.24	.05	.08	-.04	-.07	.86							
11. CoTec(T2)	2.77	1.13	-.15	-.17	.11	.15	-.23	.11	.05	-.08	-.07	.48	.82						
12. CoTec(T3)	2.63	1.04	-.12	-.15	.18	.08	-.11	.02	.11	-.08	-.06	.34	.62	.84					
13. CoTec(T4)	2.59	1.02	-.22	-.18	.26	.16	-.21	.12	.08	-.05	-.11	.41	.60	.75	.86				
14. SuTec(T1)	2.27	1.12	-.06	-.10	.23	.15	-.23	.05	.09	.04	-.16	.65	.43	.19	.34	.85			
15. SuTec(T2)	2.28	.98	-.06	-.14	.08	.09	-.11	.11	.08	-.15	.02	.20	.57	.44	.42	.42	.85		
16. SuTec(T3)	2.16	.85	-.13	-.15	.15	-.05	-.05	.06	.14	.04	-.10	.16	.43	.56	.52	.39	.63	.84	
17. SuTec(T4)	2.15	.85	-.24	-.19	.32	.07	-.15	.18	.18	-.03	-.18	.25	.46	.47	.69	.47	.55	.71	.85
18. CoRef(T1)	2.39	1.30	-.03	-.18	.18	.07	-.11	-.11	.11	-.01	-.18	.70	.38	.36	.40	.52	.19	.20	.22
19. CoRef(T2)	2.39	1.08	-.08	-.21	.10	-.03	-.05	-.06	.03	.01	-.17	.40	.69	.54	.57	.36	.42	.39	.41

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
20. CoRef(T3)	2.40	1.02	-.13	-.24	.08	-.08	.02	-.07	.04	.04	-.08	.34	.55	.67	.70	.32	.42	.53	.51
21. CoRef(T4)	2.36	1.07	-.12	-.22	.13	-.01	.02	.07	.08	.01	-.12	.33	.53	.63	.77	.33	.41	.49	.62
22. SuRef(T1)	2.32	.84	-.07	-.18	.15	-.13	.04	.11	.05	.09	-.07	.13	.40	.46	.60	.30	.45	.63	.73
23. SuRef(T2)	2.37	.88	-.01	-.19	.08	-.15	.02	.04	-.05	.06	-.06	.11	.41	.52	.52	.29	.53	.76	.60
24. SuRef(T3)	2.39	.90	-.02	-.20	.19	-.04	-.01	.01	.05	-.04	-.24	.13	.47	.45	.51	.29	.64	.59	.58
25. SuRef(T4)	2.40	1.01	.07	-.10	.19	.01	-.14	-.03	.09	.10	-.14	.45	.31	.21	.31	.69	.32	.41	.41
26. CoReB(T1)	3.29	1.03	.04	-.21	.08	.25	-.31	.09	-.05	.14	-.04	.24	.31	.07	.22	.24	.12	.05	.18
27. CoReB(T2)	3.25	.97	.03	-.23	.10	.26	-.26	.09	-.02	.13	-.06	.25	.26	.16	.24	.21	.17	.12	.16
28. CoReB(T3)	3.22	.96	.03	-.26	.07	.20	-.31	.04	.01	.15	-.05	.21	.31	.17	.26	.27	.14	.13	.19
29. CoReB(T4)	2.98	1.01	.04	-.12	.12	.30	-.38	.09	.13	.16	.02	.47	.29	.10	.18	.42	.17	.11	.13
30. TaskM(T1)	3.46	.63	.15	.06	-.04	.04	.05	-.03	-.02	.18	.07	-.16	-.22	-.20	-.26	-.05	-.20	-.09	-.12

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
31. TaskM(T2)	3.36	.64	-.05	.07	-.04	.15	-.03	.02	-.03	.13	.02	-.15	-.15	-.13	-.18	-.05	-.20	-.17	-.12
32. TaskM(T3)	3.38	.63	.02	.06	-.04	.17	-.15	.05	-.15	.17	.03	-.10	-.19	-.22	-.19	-.05	-.21	-.15	-.14
33. TaskM(T4)	3.53	.70	-.02	.16	.11	.20	-.18	.10	-.11	.24	.01	-.16	-.20	-.22	-.25	-.11	-.24	-.16	-.14
34. RoleC(T1)	3.50	.63	.15	.07	.05	-.01	.03	-.12	-.04	.24	-.03	-.11	-.25	-.22	-.18	.05	-.20	-.11	-.07
35. RoleC(T2)	3.47	.66	-.04	.06	-.05	-.04	.09	-.16	-.09	.24	.06	-.11	-.12	-.08	-.02	-.03	-.10	-.03	.06
36. RoleC(T3)	3.55	.64	.05	-.06	.05	-.01	-.05	-.15	-.25	.23	-.02	-.12	-.11	-.15	-.05	.01	-.12	-.10	-.01
37. RoleC(T4)	3.64	.66	-.02	.02	.19	.08	-.12	-.13	-.13	.26	-.11	-.06	-.10	-.10	-.07	-.02	-.18	-.09	.01
38. SocIn(T1)	3.47	.73	-.01	.01	.03	.22	-.19	-.09	-.02	.18	.08	.25	.07	-.07	-.04	.23	.03	-.05	-.03
39. SocIn(T2)	3.64	.75	.09	-.12	-.12	.02	-.05	-.12	-.06	.11	.07	.00	.08	.00	-.01	-.01	.01	-.09	-.10
40. SocIn(T3)	3.75	.83	.10	-.07	-.03	.07	-.04	-.09	-.09	.05	.01	.17	.09	.05	.03	.09	.06	-.03	-.03
41. SocIn(T4)	3.87	.83	-.02	-.08	-.01	.07	-.12	-.05	-.10	.13	.03	.06	.07	-.01	.01	.09	.00	.04	.03

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
42. JobPer(T1)	4.43	.86	.16	.13	-.10	-.05	.11	-.20	-.11	.13	-.06	-.13	-.10	-.04	-.16	-.06	-.13	.03	-.11
43. JobPer(T2)	4.32	.93	.22	.09	-.15	.16	-.07	-.09	-.01	-.06	.00	-.19	-.10	-.04	-.14	-.15	-.07	.02	-.13
44. JobPer(T3)	4.45	.76	.29	.08	-.05	-.02	.00	-.09	-.06	.04	-.01	-.20	-.13	-.08	-.16	-.07	-.15	.00	-.15
45. JobPer(T4)	4.47	.83	.14	.08	.00	.07	-.06	.03	.00	.04	-.03	-.16	-.15	-.10	-.12	-.10	-.25	-.08	-.13
46. JobSat(T1)	3.74	.64	.20	.12	-.03	.12	-.05	-.05	-.15	.17	.15	.08	-.08	-.07	-.11	.19	-.08	-.01	-.04
47. JobSat(T2)	3.76	.70	.04	.09	-.10	.14	-.07	.12	-.07	.22	.14	-.10	-.08	-.04	-.07	-.09	-.17	-.11	-.10
48. JobSat(T3)	3.77	.74	.06	.14	-.09	.05	-.05	-.06	-.15	.18	.05	-.04	-.07	-.09	-.09	.00	-.12	-.08	-.09
49. JobSat(T4)	3.88	.75	-.05	.15	.02	.12	-.14	.04	-.09	.21	.06	.05	.05	.01	-.01	.10	.00	.06	.02
50. OrgCo(T1)	4.11	.57	.13	.03	-.16	.12	-.14	.01	-.12	.23	.11	-.01	.00	-.11	-.13	.13	.01	-.01	-.07
51. OrgCo(T2)	4.07	.67	.15	.05	-.13	.11	-.09	.12	-.12	.12	.12	-.01	.05	-.03	-.06	.11	-.02	-.04	-.01
52. OrgCo(T3)	4.00	.66	.04	.07	-.10	.05	-.07	-.01	-.13	.16	.15	-.03	-.02	-.06	-.06	.03	-.06	-.01	-.01

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
53. OrgCo(T4)	4.05	.64	.05	.15	.00	.09	-.09	.03	-.02	.15	.14	.00	.03	-.07	-.05	.08	-.01	.05	.03
54. ProCo(T1)	4.29	.57	.14	.23	-.21	-.03	.14	-.08	-.12	.29	.16	-.11	-.14	-.17	-.24	-.03	-.11	-.08	-.14
55. ProCo(T2)	4.21	.57	.20	.08	-.13	.07	-.02	.07	-.17	.33	.11	-.10	-.11	-.17	-.16	.03	-.18	-.13	-.11
56. ProCo(T3)	4.14	.61	.01	.05	-.09	.04	-.04	-.01	-.07	.18	.05	.00	-.05	-.12	-.10	.04	-.11	-.08	-.06
57. ProCo(T4)	4.21	.59	.13	.18	-.07	.12	-.06	.06	-.13	.34	.09	.01	-.08	-.16	-.13	.03	-.18	-.04	-.07
58. fTaskM(T4)	4.11	.62	-.03	-.01	.06	.40	-.34	.36	.05	-.09	-.05	.05	.19	.23	.15	-.06	.16	.17	.06
59. fRoleC(T4)	3.96	.58	-.01	.18	.27	.01	-.12	.03	-.02	-.04	.08	.01	.00	.15	.10	-.13	-.06	.01	.01
60. fJobPer(T4)	4.46	.89	.00	-.04	-.14	.12	-.12	-.05	-.05	.00	.00	-.04	.00	.11	-.05	-.02	-.05	.06	-.01
61. fJobSat(T4)	4.19	.64	.08	.11	.05	.11	-.07	.07	-.04	.11	.12	-.06	.03	.14	-.06	-.16	-.02	.08	.01
62. fOrgCo(T4)	4.36	.66	-.01	-.17	.09	.15	-.15	.04	-.10	.03	-.10	-.01	.05	-.17	-.14	.02	-.02	-.06	.03
63. fProCo(T4)	4.39	.73	.15	.03	.05	.13	.00	.18	-.28	.07	.10	.02	.04	-.23	-.16	.06	-.03	-.11	-.07

Variable	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
18. CoRef(T1)	.90																		
19. CoRef(T2)	.48	.88																	
20. CoRef(T3)	.48	.73	.90																
21. CoRef(T4)	.44	.68	.80	.92															
22. SuRef(T1)	.25	.44	.57	.72	.88														
23. SuRef(T2)	.26	.43	.65	.60	.78	.89													
24. SuRef(T3)	.28	.60	.58	.62	.59	.66	.85												
25. SuRef(T4)	.61	.43	.44	.43	.48	.47	.48	.86											
26. CoReB(T1)	.25	.23	.10	.13	.09	.02	.10	.16	.88										
27. CoReB(T2)	.29	.21	.16	.12	.13	.12	.11	.20	.86	.87									

Variable	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
28. CoReB(T3)	.25	.27	.20	.16	.13	.11	.14	.20	.79	.83	.84								
29. CoReB(T4)	.45	.23	.12	.10	.09	.07	.07	.31	.58	.64	.68	.86							
30. TaskM(T1)	-.15	-.17	-.14	-.11	-.09	-.13	-.12	.07	.05	-.05	.04	.02	.73						
31. TaskM(T2)	-.18	-.12	-.16	-.13	-.19	-.23	-.13	-.05	.10	.06	.06	.03	.51	.69					
32. TaskM(T3)	-.15	-.14	-.21	-.17	-.18	-.22	-.20	-.03	.21	.17	.13	.08	.50	.74	.67				
33. TaskM(T4)	-.21	-.21	-.27	-.25	-.23	-.26	-.23	-.05	.18	.14	.14	.09	.49	.67	.71	.74			
34. RoleC(T1)	-.06	-.16	-.09	-.11	.01	-.09	-.15	.15	.02	.03	.09	.08	.59	.38	.39	.41	.74		
35. RoleC(T2)	-.01	-.03	-.03	.06	.06	.00	.01	.07	.02	.02	-.05	-.02	.24	.49	.33	.33	.44	.79	
36. RoleC(T3)	.00	.02	-.03	.04	.04	-.03	.02	.09	.23	.20	.17	.12	.27	.50	.53	.40	.51	.72	.78
37. RoleC(T4)	-.01	.01	-.05	-.04	-.05	-.12	-.04	-.03	.28	.27	.21	.18	.29	.46	.45	.56	.48	.55	.73

Variable	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
38. SocIn(T1)	.23	.08	-.04	-.04	-.07	-.09	-.04	.14	.57	.56	.56	.60	.20	.18	.26	.23	.32	.14	.38
39. SocIn(T2)	.05	.12	.01	.01	-.06	-.08	.03	-.01	.62	.63	.59	.32	.07	.16	.20	.12	.04	.14	.35
40. SocIn(T3)	.20	.13	.06	.07	.00	-.01	.08	.08	.66	.69	.53	.31	.07	.14	.19	.13	.08	.16	.37
41. SocIn(T4)	.14	.09	.04	.06	.08	.06	.07	.14	.64	.65	.53	.29	.17	.20	.28	.25	.13	.20	.41
42. JobPer(T1)	-.12	-.16	-.18	-.17	-.08	-.04	-.02	-.03	.06	.09	.10	.00	.14	.14	.19	.14	.13	.09	.13
43. JobPer(T2)	-.18	-.12	-.18	-.16	-.14	-.06	.01	-.05	.12	.09	.08	.02	.20	.27	.24	.21	.02	.06	.15
44. JobPer(T3)	-.16	-.15	-.27	-.20	-.21	-.20	-.13	-.10	.18	.11	.14	.03	.30	.35	.47	.39	.12	.17	.28
45. JobPer(T4)	-.13	-.23	-.21	-.19	-.21	-.19	-.18	-.16	.10	.06	.17	.06	.22	.23	.33	.38	.13	.15	.20
46. JobSat(T1)	.00	-.09	-.06	-.11	-.06	-.03	-.09	.17	.09	.07	.22	.25	.52	.33	.35	.33	.53	.16	.28
47. JobSat(T2)	-.04	-.03	-.09	-.05	-.04	-.05	-.06	.04	.23	.20	.22	.18	.41	.62	.60	.49	.39	.39	.46

Variable	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
48. JobSat(T3)	-.01	-.04	-.11	-.10	-.05	-.08	-.10	.00	.40	.35	.34	.24	.26	.46	.59	.51	.33	.34	.51
49. JobSat(T4)	.07	.02	.02	-.01	.07	.05	.02	.09	.41	.36	.33	.27	.15	.28	.39	.47	.21	.14	.33
50. OrgCo(T1)	-.02	-.04	-.04	-.17	-.13	-.08	-.09	.07	.33	.25	.32	.30	.25	.16	.25	.30	.26	.04	.18
51. OrgCo(T2)	.00	.05	-.03	-.06	-.11	.01	.01	.07	.42	.32	.36	.21	.16	.22	.30	.26	.14	.07	.28
52. OrgCo(T3)	-.02	-.06	-.07	-.12	-.08	-.01	-.06	-.02	.45	.39	.38	.21	.14	.25	.35	.30	.18	.15	.41
53. OrgCo(T4)	.04	.03	-.01	-.06	.02	.04	-.05	.08	.41	.38	.32	.23	.14	.18	.28	.27	.18	.07	.30
54. ProCo(T1)	-.07	-.11	-.12	-.22	-.17	-.08	-.11	-.01	.13	.05	.09	.05	.23	.06	.15	.18	.14	.06	.11
55. ProCo(T2)	-.07	-.08	-.10	-.18	-.18	-.13	-.15	-.01	.33	.23	.32	.14	.27	.20	.31	.32	.20	.07	.24
56. ProCo(T3)	.03	-.04	-.11	-.13	-.10	-.09	-.10	.01	.33	.28	.22	.13	.09	.18	.28	.23	.14	.20	.40
57. ProCo(T4)	.00	-.06	-.06	-.13	-.10	-.10	-.15	.04	.38	.33	.29	.20	.20	.21	.33	.39	.25	.15	.34

Variable	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
58. fTaskM(T4)	-.07	.14	.00	.10	-.07	-.03	.02	-.10	.10	.12	.17	.11	.01	.03	.28	.29	-.10	-.31	-.16
59. fRoleC(T4)	-.06	.03	.01	.07	-.08	-.10	-.13	-.07	-.06	-.11	-.03	-.05	.09	-.02	.16	.23	.06	-.17	-.10
60. fJobPer(T4)	-.09	-.02	-.05	-.03	-.14	-.04	-.02	-.16	-.13	-.07	.01	-.06	.06	.16	.22	.21	-.10	-.10	-.10
61. fJobSat(T4)	-.16	-.04	-.13	-.03	-.06	-.09	-.11	-.23	.06	.11	.18	.12	.07	.17	.22	.34	.10	.02	.10
62. fOrgCo(T4)	-.07	-.03	-.21	-.11	-.07	-.15	.02	-.13	.30	.24	.20	.24	.04	-.03	.05	.16	.11	-.02	.10
63. fProCo(T4)	-.04	-.01	-.23	-.11	-.09	-.16	-.11	-.05	.26	.15	.14	.14	.22	.05	.21	.24	.14	-.05	.14

Variable	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
37. RoleC(T4)	.80																		
38. SocIn(T1)	.42	.82																	
39. SocIn(T2)	.32	.56	.84																
40. SocIn(T3)	.36	.61	.81	.89															
41. SocIn(T4)	.43	.65	.75	.81	.89														
42. JobPer(T1)	.12	.08	.08	.14	.12	.95													
43. JobPer(T2)	.06	-.04	.10	.05	.08	.59	.95												
44. JobPer(T3)	.26	.05	.15	.16	.15	.54	.59	.92											
45. JobPer(T4)	.24	-.02	.05	.03	.04	.36	.44	.73	.94										
46. JobSat(T1)	.27	.39	.05	.05	.14	.23	.20	.20	.15	.85									

Variable	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
47. JobSat(T2)	.40	.26	.28	.19	.24	.18	.27	.33	.29	.40	.87								
48. JobSat(T3)	.57	.42	.41	.44	.47	.23	.25	.42	.34	.35	.64	.88							
49. JobSat(T4)	.50	.40	.30	.36	.42	.17	.13	.23	.21	.30	.47	.71	.87						
50. OrgCo(T1)	.30	.29	.23	.17	.24	.13	.06	.22	.18	.41	.34	.51	.46	.82					
51. OrgCo(T2)	.27	.33	.41	.38	.41	.18	.15	.22	.19	.27	.41	.55	.47	.60	.91				
52. OrgCo(T3)	.42	.38	.44	.46	.51	.24	.20	.28	.20	.23	.37	.70	.57	.59	.81	.87			
53. OrgCo(T4)	.39	.35	.30	.37	.45	.19	.16	.22	.14	.17	.27	.57	.64	.52	.60	.75	.89		
54. ProCo(T1)	.21	.13	.18	.09	.20	.10	.13	.16	.18	.22	.22	.40	.37	.65	.48	.49	.48	.88	
55. ProCo(T2)	.26	.23	.31	.24	.35	.23	.24	.26	.31	.29	.37	.48	.40	.58	.78	.67	.55	.70	.88
56. ProCo(T3)	.40	.26	.33	.36	.45	.17	.14	.16	.14	.13	.31	.53	.43	.49	.60	.74	.63	.59	.70

Variable	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
57. ProCo(T4)	.45	.34	.37	.38	.51	.22	.20	.22	.19	.25	.32	.58	.59	.56	.57	.69	.76	.62	.72
58. fTaskM(T4)	.03	-.01	.02	-.09	-.12	-.09	.16	.20	.23	-.01	.07	.15	.18	.25	.18	.12	.14	.13	.08
59. fRoleC(T4)	.02	-.08	-.14	-.25	-.15	-.22	-.03	.05	.10	-.04	-.10	-.03	-.08	-.14	-.23	-.10	-.02	-.08	-.15
60. fJobPer(T4)	.02	-.16	-.03	-.14	-.17	.15	.31	.34	.25	.08	.20	.14	.11	.13	.03	.09	.05	.08	.03
61. fJobSat(T4)	.25	.13	.08	.00	.09	.09	.27	.24	.33	.16	.14	.24	.26	.23	.17	.27	.22	.13	.22
62. fOrgCo(T4)	.25	.31	.23	.15	.23	.01	.09	.08	.18	.07	-.02	.10	.27	.20	.20	.20	.27	.11	.11
63. fProCo(T4)	.23	.29	.20	.09	.21	.08	.21	.25	.31	.27	.13	.17	.24	.22	.20	.16	.25	.23	.21

Variable	56	57	58	59	60	61	62	63
56. ProCo(T3)	.89							
57. ProCo(T4)	.73	.92						
58. fTaskM(T4)	.10	.02	.72					
59. fRoleC(T4)	-.09	-.08	.56	.68				
60. fJobPer(T4)	.01	.04	.46	.36	.94			
61. fJobSat(T4)	.16	.29	.52	.45	.32	.89		
62. fOrgCo(T4)	.03	.25	.33	.08	.26	.44	.94	
63. fProCo(T4)	.04	.29	.37	.25	.31	.41	.74	.96

Note. Variables abbreviated: Gender = newcomer's gender (0 = male; 1 = female); Age = newcomer's age (in years); StudStat = newcomer's student status (0 = domestic; 1 = foreign); GradAssist = whether newcomer was holding a graduate assistantship (0 = no; 1 = yes); Outjob = newcomer's employment status outside his or her graduate assistantship (1 = no; 2 = part-time; 3 = full-time); ResearchReq = whether a research project was part of newcomer's degree requirement (0 = no; 1 = yes); GRE = newcomer's Graduate Record Examination scores (mean percentiles across Verbal, Quantitative, and Analytical sections of the GRE converted to scores on a 0-5 continuous range); ProactPer =

Bateman and Crant's (1993) proactive personality scale (theoretical range = 1 to 7); PrevTran = previous transition experience measure (theoretical range = 1 to 5); CoTec = technical information seeking from coworkers (theoretical range = 1 to 7); SuTec = technical information seeking from supervisors (theoretical range = 1 to 7); CoRef = referent information seeking from coworkers (theoretical range = 1 to 7); SuRef = referent information seeking from supervisors (theoretical range = 1 to 7); CoReB = relationship building with coworkers (theoretical range = 1 to 5); TaskM = task mastery (theoretical range = 1 to 7); RoleC = role clarity (theoretical range = 1 to 7); SocIn = social integration (theoretical range = 1 to 7); JobPer = overall job performance (theoretical range = 1 to 5); JobSat = overall job satisfaction (theoretical range = 1 to 5); OrgCo = organizational commitment (theoretical range = 1 to 5); ProCo = professional commitment (theoretical range = 1 to 5). Variables prefixed with the letter "f" referred to supervisory ratings of the newcomer's level on the relevant adaptation outcome. (T1) to (T4) indicated the time of administration (the 4 time points were spaced at 1-month intervals between adjacent time points). Variables 1 to 9 were administered at initial organizational entry (T1) except GRE scores which were obtained from the university at the end of the study.

the two individual predictors, i.e., Variables 1-9 in Table 1) indicated that these variables were at most weakly associated suggesting that there was little redundancy across these 9 variables. The highest correlation was between age and previous transition experience ($\underline{r}$ = .50) which was not surprising because older newcomers would be more likely to have experienced more transitions prior to organizational entry (i.e., entering graduate school). Note also that proactive personality and previous transition experience were weakly correlated ($\underline{r}$ = .17) indicating that it was worthwhile to examine separately each of these two individual predictors and their relationships with the proactivity and adaptation outcome variables. Overall, there were no substantial bivariate associations between the individual difference variables and proactivity or adaptation outcome variables with the majority of the correlations falling below a magnitude of .30. Note, however, that supervisory assessment of the extent to which the newcomer had mastered their job tasks at the end of the transition period (Variable 58) was substantially correlated with Variables 4, 5, and 6 indicating that newcomers who received higher task mastery ratings from supervisors were likely to be those who held a graduate assistantship ($\underline{r}$ = .40), were enrolled in a program in which a research project is part of the degree requirement ($\underline{r}$ = .36), and did not have outside employment that was not part of their graduate assistantship ($\underline{r}$ = –.34). One possibility is that, for these newcomers, supervisors had more opportunities to observe mastery on specific job tasks. It may be that supervisors tend to give high ratings on task mastery but are likely to do so only if they have the opportunity to observe task performance. A comparison of means on the relevant pairs of

variables (Variables 33 vs. 58; 37 vs. 59; 45 vs. 60; 49 vs. 61; 53 vs. 62; 57 vs. 63) indicated that supervisory ratings were generally higher than self-reported ratings on the adaptation outcomes assessed at the end of the transition period. Supervisory ratings and newcomer self-reported ratings were significantly and positively correlated for task mastery, although the effect was not large, $\underline{r} = .29$, $\underline{p} < .05$. They were uncorrelated for role clarity, $\underline{r} = .02$, $\underline{p} > .05$. Supervisory ratings and newcomer self-reported ratings were significantly and positively correlated to the same extent for all four distal adaptation outcomes (i.e., job performance, job satisfaction, organization commitment, and professional commitment) although the effects were relatively small with correlations ranging from .25 to .29, $\underline{p} < .05$. Each hypothesis will be addressed directly in the following sections. The rest of Table 1 will be referred to in the following descriptions of results whenever relevant.

Information Seeking at Initial Status

Hypothesis 1 predicted that at initial organizational entry (i.e., at Time 1), there will be an Information Type (technical versus referent) X Information Source (coworkers versus supervisors) interaction effect on the extent of information seeking. Table 2 presents the repeated measures hierarchical regression analysis performed to test Hypothesis 1. The total variance in the extent of information seeking ($\sigma^2_{total} = 1.493$), which was based on 584 observations (146 participants X 4 within-subjects conditions), was partitioned into its between-subjects and within-subjects sources. Between-subjects variance was obtained by computing the mean information seeking score for each of the

Table 2

Repeated Measures Hierarchical Regression of Information Seeking on Information Type and Information Source

Step/Predictor	β[a]	R^2 for equation	ΔR^2	Variance accounted within
1. Type	−.07	.005		.0115
2. Source	−.13*	.021*	.016*	.0368*
3. Source X Type	.17*	.030*	.009*	.0207*

Note. Type and Source were dummy-coded (with technical = 0, and referent = 1; coworkers = 0, and supervisors = 1). The repeated measures regression is based on 584 observations (146 participants X 4 within-subjects conditions).

[a] Standardized regression coefficients associated with each step of the regression.

* $p < .05$.

146 participants and finding the variance of the 146 means ($\sigma^2_{between}$ = .843). By definition, the within-subjects variance was .650 ($\sigma^2_{within} = \sigma^2_{total} - \sigma^2_{between}$). As shown in Table 2, information type was entered in the first step of the repeated measures hierarchical regression. The main effect of information type on the extent of information seeking was not significant, $p > .05$. That is, without taking information source into consideration, newcomers did not differ in the extent to which they sought technical versus referent information. Information source was entered in the second step of the regression. The main effect of information source was significant, $p < .05$, and it accounted for 3.68% of the within-subjects variance in the extent of information seeking. The direction of the main effect indicated that, overall, newcomers sought information from coworkers more frequently than from supervisors. Finally, the information type X information source product term, which was entered in the third step, was significant, $p < .05$, and accounted for 2.07% unique within-subjects variance.

Figure 4 depicts the nature of the information type X information source interaction in terms of between-source differences in mean information seeking scores. As shown in the figure, the extent of information sought from coworkers was higher than that sought from supervisors when the information was of the technical type but no between-source difference in extent of information seeking was present when the information was of the referent type. Following Chan (1997), I computed effect sizes for observed mean differences in information seeking with the d statistic (standardized mean difference) to assess the practical significance of the statistically significant interaction.

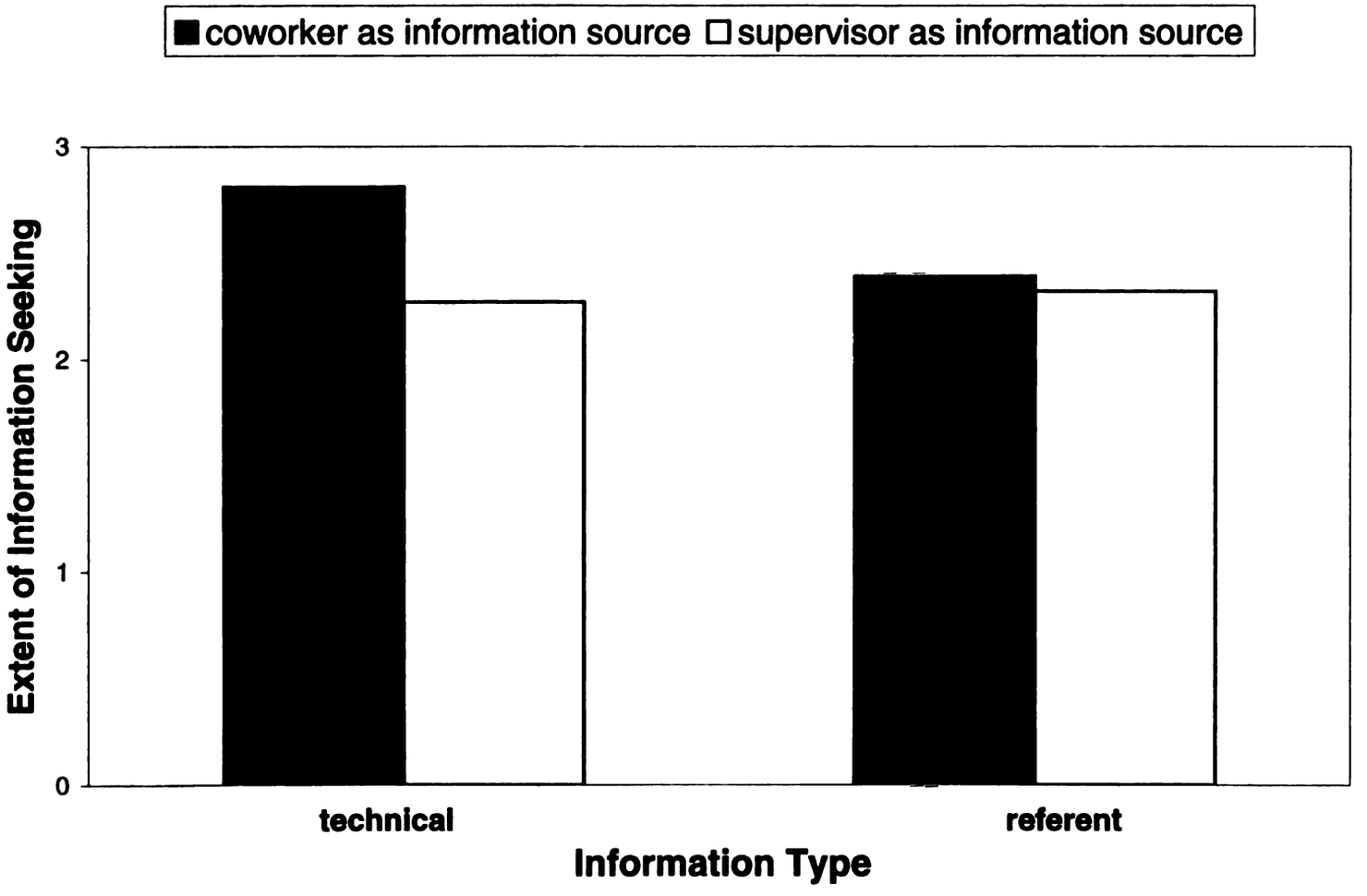


Figure 4 - Information Type X Information Source Interaction Effect on Extent of Information Seeking

A statistically significant and substantial coworker-supervisor difference of .40 standard deviation unit ($p < .05$) with more information sought from coworkers than from supervisors was found when the information was of the technical type. However, when information was of the referent type, a statistically nonsignificant and trivial coworker-supervisor difference of .06 standard deviation unit ($p > .05$) was obtained. Note that the measures of information seeking from coworkers and measures of information seeking from supervisors have almost identical reliabilities (see Table 1; technical: 86 versus .85; referent: .90 versus .88). Thus, the finding of an information type X information source interaction could not be an artifact of differential reliabilities of information seeking across information source. Corrected for unreliability (Cronbach's alpha), the d's for coworker-supervisor difference were .47 for technical information seeking and .07 for referent information seeking. Hence, Hypothesis 1 was partially supported. Information type and information source interacted to affect the extent of information seeking. As predicted, when information was of the technical type, newcomers sought the information from coworkers more frequently than from supervisors. However, contrary to what was predicted in Hypothesis 1, no significant between-source difference in the extent of referent information seeking was obtained.

Proactivity Variables

Hypotheses 2 and 3 predicted the nature of the trajectory that best describes intraindividual change over time on each of the proactivity variables. An inspection of the means from Time 1 to Time 4 for each focal change variable (see Table 1) indicates

patterns that are consistent with the hypothesized directions of intraindividual change over time. Specifically, the means for information seeking variables show a general downward trend for technical information seeking from coworkers (Hypothesis 2a), a general upward trend for referent information seeking from supervisors (Hypothesis 2d), and a horizontal trend for both technical information seeking from supervisors (Hypothesis 2b) and referent information seeking from coworkers (Hypothesis 2c). The means for relationship building show a general downward trend as predicted in Hypothesis 3. Because the means reported in Table 1 were computed from observed scores, measurement error may obscure the nature of the true growth trajectory. Latent growth analysis models the true growth trajectory by separating the observed scores into a component describing true growth and a component representing the stochastic effect of measurement error.

Table 3 presents the series of nested univariate latent growth models fit separately to each of the 5 proactivity variables (i.e., four information seeking variables and one relationship building variable). For each proactivity variable, the first model (Model P1) fit to the data was a "no-growth" or strict stability model (Stoolmiller, 1994) which specified that no growth occurred at all over the four time points (i.e., a horizontal trajectory). This model is the most restricted model and is nested under the second and third models in the table. The second model (Model P2) fit to the data for each proactivity variable was a linear trajectory model which specified a straight line growth

Table 3

Model Fit Indices and Nested Model Comparisons in Univariate Latent Growth Analyses of Proactivity Variables (N = 146)

Variable/Model	χ^2	df	Model Comparison	$\Delta\chi^2$	Δdf	AGFI	NNFI	CFI	SRMR	RMSEA
CoTec										
Model P1 (no-growth)	21.58*	8				.93	.96	.94	.07	.11
Model P2 (linear trajectory)	6.87	5	P1 vs. P2	14.71*	3	.96	.99	.99	.04	.05
Model P3 (unspecified trajectory)	3.29	3	P2 vs. P3	3.58	2	.98	.99	.99	.02	.03
SuTec										
Model P1 (no-growth)	13.78	8				.96	.98	.97	.06	.07
Model P2 (linear trajectory)	9.01	5	P1 vs. P2	4.77	3	.95	.98	.98	.04	.07
Model P3 (unspecified trajectory)	3.68	3	P1 vs. P3	10.10	5	.99	.99	.99	.01	.04

Variable/Model	χ^2	df	Model Comparison	$\Delta\chi^2$	Δdf	AGFI	NNFI	CFI	SRMR	RMSEA
CoRef										
Model P1 (no-growth)	9.57	8				.96	.99	.99	.09	.04
Model P2 (linear trajectory)	1.94	5	P1 vs. P2	7.63	3	.99	1.00	1.00	.03	.00
Model P3 (unspecified trajectory)	.62	3	P1 vs. P3	8.95	5	.99	1.00	1.00	.01	.00
SuRef										
Model P1 (no-growth)	16.48*	8				.94	.98	.97	.09	.09
Model P2 (linear trajectory)	6.31	5	P1 vs. P2	10.17*	3	.96	.99	.99	.04	.04
Model P3[a] (unspecified trajectory)	--	--	--	--	--	--	--	--	--	--

Variable/Model	χ^2	df	Model Comparison	$\Delta\chi^2$	Δdf	AGFI	NNFI	CFI	SRMR	RMSEA
CoReB										
Model P1	39.21*	8				.90	.95	.93	.11	.16
(no-growth)										
Model P2	10.51	5	P1 vs. P2	28.70*	3	.99	.99	.99	.04	.09
(linear trajectory)										
Model P3	.84	3	P2 vs. P3	9.67*	2	.99	1.00	1.00	.02	.00
(unspecified trajectory)										

Note. Variables abbreviated: CoTec = technical information seeking from coworkers; SuTec = technical information seeking from supervisors; CoRef = referent information seeking from coworkers; SuRef = referent information seeking from supervisors; CoReB = relationship building with coworkers. Model P1 was selected as the final model for SuTec and CoRef. Model P2 was selected as the final model for CoTec (see Figure 5), SuRef (see Figure 6), and CoReB (see Figure 7). Model P2 was selected for CoReB despite a significant $\Delta\chi^2$ on the basis of parsimony and model fit (see text).

* $p < .05$.

[a] This model failed to converge to a proper solution after 1000 iterations.

over the four time points. Finally, the third model (Model P3) fit to the data was the unspecified two-factor model discussed above. Model P2 is nested under Model P3.

Hypothesis 2a predicted that, over time, the extent to which newcomers ask coworkers for technical information will decrease. As shown in Table 3, the values of the AGFI, NNFI, CFI, and SRMR fit indices suggested that the no-growth model (Model P1) fit the data on technical information seeking from coworkers reasonably well but the RMSEA value suggested a relatively poor model fit. The linear trajectory model (Model P2), on the other hand, provided a good fit to the data, AGFI = .96, NNFI = .99, CFI = .99, SRMR = .04, RMSEA = .05. The nested model comparison using the chi-square difference test showed that the linear trajectory model provided significant incremental fit over the no-growth model, $\Delta\chi^2 = 14.71$, $\Delta df = 3$, $p < .05$, indicating that a linear growth model represented the nature of intraindividual change over the four time points better than a no-growth model. The unspecified two-factor model (Model P3) also provided a good fit to the data but the nested model comparison showed that it did not provide significant incremental fit over the linear trajectory model, $\Delta\chi^2 = 3.58$, $\Delta df = 2$, $p > .05$. Therefore, on the basis of parsimony and model fit, the linear trajectory model (Model P2) was selected as the final model that most adequately described intraindividual change in technical information seeking from coworkers.

Figure 5 depicts the linear trajectory model (Model P2 with associated LISREL parameter estimates) for technical information seeking from coworkers. As shown in the figure, the R square values associated with the observed measures of information seeking

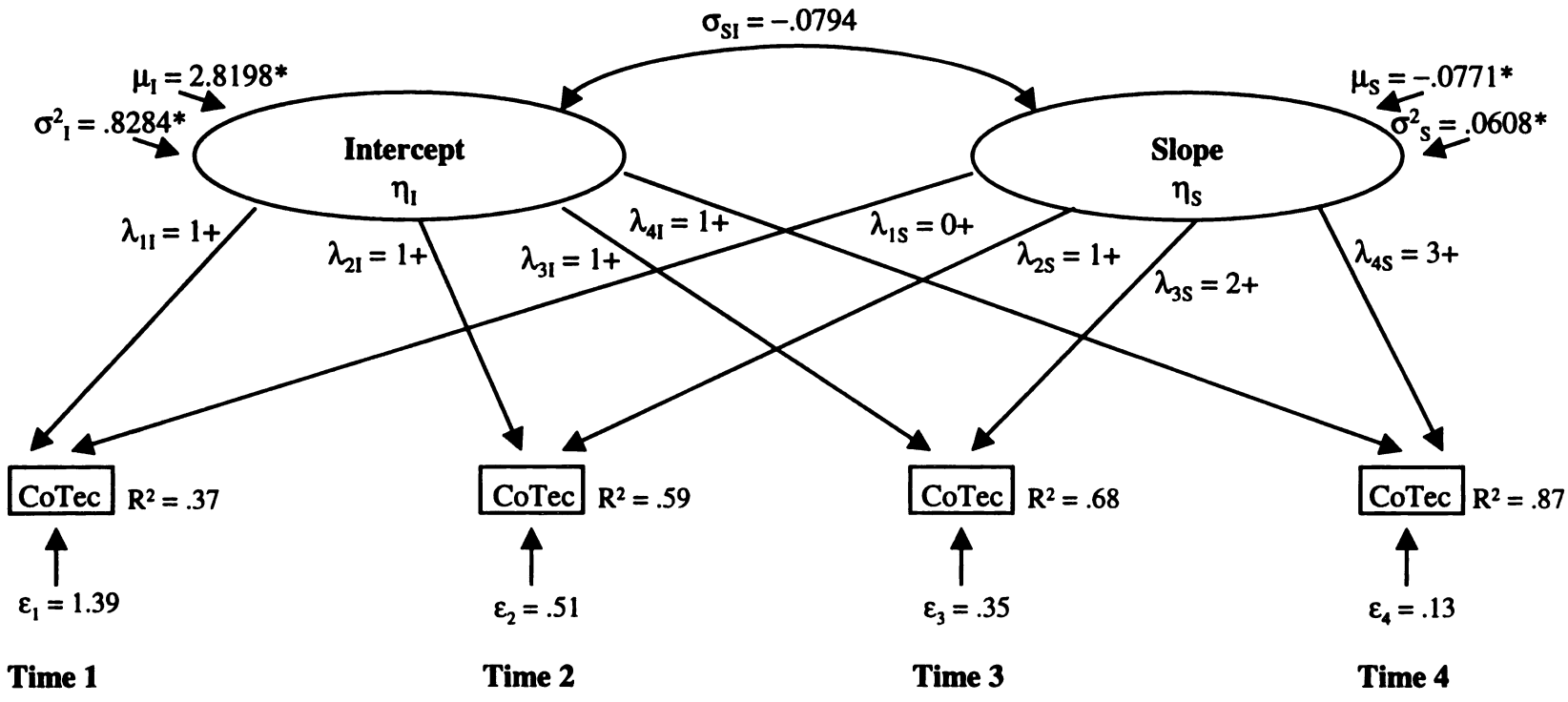


Figure 5 - Linear Trajectory Growth Model (Model P2) for Technical Information Seeking from Coworkers (with associated LISREL 8 estimates).
Note. A parameter value with a plus sign indicates that the parameter is fixed at that value.

at the four time points are substantial indicating that most of the variance in the observed measures was accounted for by the growth factors. This suggests that most of the observed change in information seeking was related to time and that latent growth analysis was appropriate. The slope factor mean is negative and departs significantly from zero, $\mu_S = -.0771$, $t = -2.39$, $p < .05$, indicating that, over time, the extent to which newcomers ask coworkers for technical information decreased linearly. The pattern of fitted means (not shown in figure) from this linear trajectory model, [2.82, 2.74, 2.67, 2.59], is consistent with a linearly decreasing trajectory. Hence, Hypothesis 2a was supported.

Figure 5 also shows that the variance of the intercept factor departs significantly from zero, $\sigma^2_I = .8284$, $t = 4.79$, $p < .05$, indicating that there were systematic individual differences in technical information seeking from coworkers at initial organizational entry. The slope factor variance is also significantly different from zero, $\sigma^2_S = .0608$, $t = 2.37$, $p < .05$, indicating that newcomers differed in their rate of decrease in technical information seeking from coworkers. The factor covariance between intercept and slope is negative although not significant, $\sigma_{SI} = -.0794$, $t = -1.51$, $p > .05$, and it translated into a latent correlation of $-.35$, suggesting that for technical information seeking from coworkers, individual differences at initial organizational entry and individual differences in the rate of linear decrease may be positively associated. That is, there is some evidence (but not strong) that, within the 4-month period of study, newcomers who started off (at initial organizational entry) with a higher frequency of technical

information from coworkers decreased such information seeking at a rate higher than that of those who started off with a lower frequency of such information seeking.

Hypotheses 2b and 2c predicted that, over time, the extent to which newcomers ask supervisors for technical information and coworkers for referent information, respectively, will remain constant. That is, a no-growth model (Model P1) specifying a horizontal trajectory was predicted in each hypothesis. As shown in Table 3, the values of the AGFI, NNFI, CFI, SRMR, and RMSEA fit indices indicated that the no-growth model (Model P1) provided good fit to both the data on technical information seeking from supervisors and the data on referent information seeking from coworkers. In both cases, nested model comparisons showed that neither the linear trajectory model (Model P2) nor the unspecified two-factor model (Model P3) provided any significant incremental fit over the no-growth model (technical information seeking from supervisors: $\Delta\chi^2 = 4.77$, $\Delta df = 3$, $p > .05$, for Model P1 vs. P2, and $\Delta\chi^2 = 10.10$, $\Delta df = 5$, $p > .05$, for Model P1 vs. P3; referent information seeking from coworkers: $\Delta\chi^2 = 7.63$, $\Delta df = 3$, $p > .05$, for Model P1 vs. P2, and $\Delta\chi^2 = 8.95$, $\Delta df = 5$, $p > .05$, for Model P1 vs. P3). That is, the results indicated that a no-growth model (Model P1) specifying a horizontal trajectory represented adequately the nature of intraindividual change over the four time points for both technical information seeking from supervisors and referent information seeking from coworkers. Hence, both Hypotheses 2b and 2c were supported. As noted in the introduction, no additional hypotheses on technical information seeking from supervisors and referent information seeking from coworkers were specified.

Because a no-growth model fit the data well, these two information seeking variables were excluded from subsequent latent growth analyses.

Hypothesis 2d predicted that, over time, the extent to which newcomers ask supervisors for referent information will increase. As shown in Table 3, although the no-growth model (Model P1) provided a good fit to the data on referent information seeking from supervisors, the relevant nested model comparison showed that the linear trajectory model (Model P2) provided significant incremental fit over the no-growth model, $\Delta\chi^2 = 10.17$, $\Delta df = 3$, $p < .05$, indicating that a linear growth model represented the nature of intraindividual change over the four time points better than a no-growth model. The unspecified two-factor model (Model P3) did not converge to a solution after 1000 iterations which suggested that the model was unlikely to fit the data well. Therefore, on the basis of parsimony and model fit, the linear trajectory model (Model P2) was selected as the final model that most adequately described intraindividual change in referent information seeking from supervisors.

Figure 6 depicts the linear trajectory model (Model P2 with associated LISREL parameter estimates) for referent information seeking from supervisors. As shown in the figure, the R square values associated with the observed measures of information seeking at the four time points are substantial indicating that most of the variance in the observed measures was accounted for by the growth factors. This suggests that most of the observed change in information seeking was related to time and that latent growth analysis was appropriate. The slope factor mean is positive although not significant, $\mu_S =$

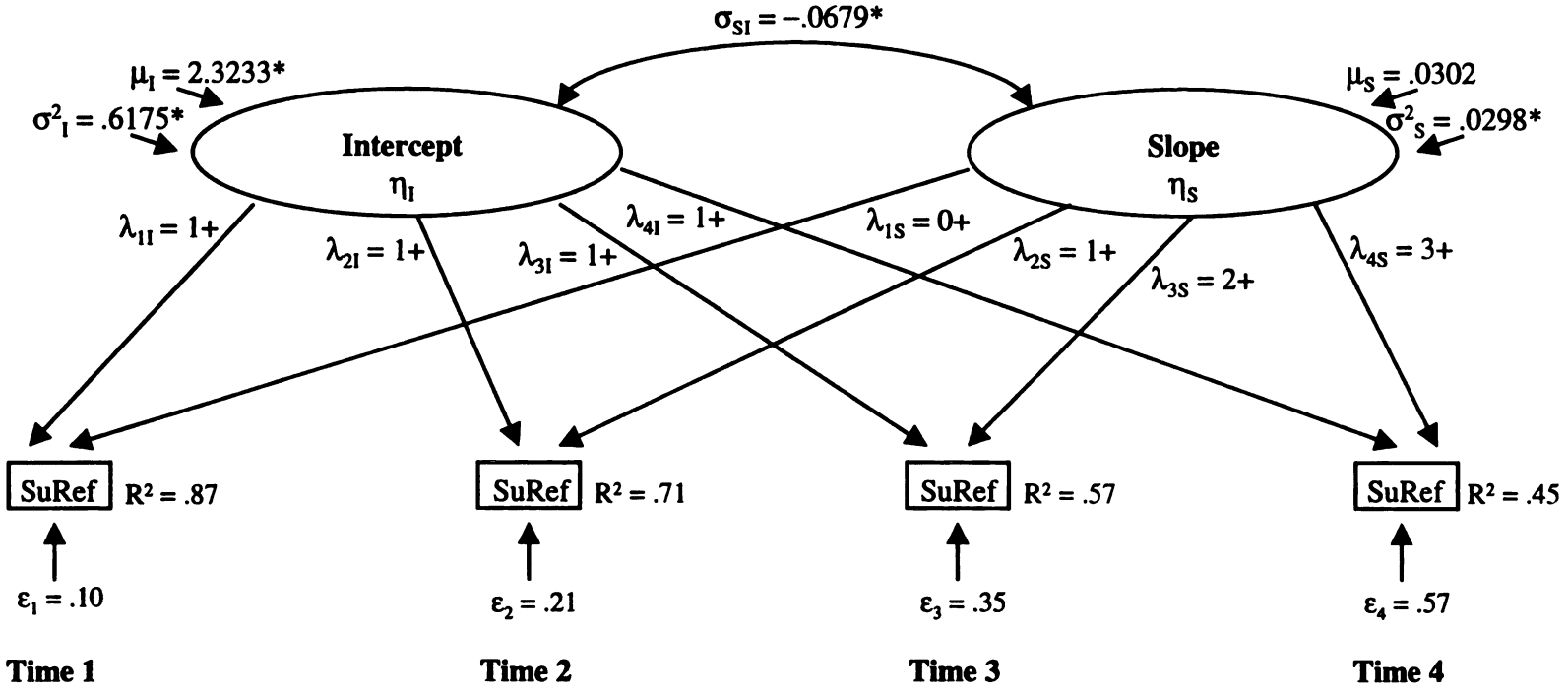


Figure 6 - Linear Trajectory Growth Model (Model P2) for Referent Information Seeking from Supervisors (with associated LISREL 8 estimates).

Note. A parameter value with a plus sign indicates that the parameter is fixed at that value.

.0302, $t = 1.28$, $p > .05$, and the pattern of fitted means (not shown in figure) from this linear trajectory model, [2.32, 2.35, 2.38, 2.41], is consistent with a linearly increasing trajectory. Hence, there was some support for Hypothesis 2d.

Figure 6 also shows that the variance of the intercept factor departs significantly from zero, $\sigma^2_I = .6175$, $t = 6.93$, $p < .05$, indicating that there were systematic individual differences in referent information seeking from supervisors at initial organizational entry. The slope factor variance is also significantly different from zero, $\sigma^2_S = .0298$, $t = 2.13$, $p < .05$, indicating that newcomers differed in their rate of increase in referent information seeking from supervisors. The factor covariance between intercept and slope is negative and departs significantly from zero, $\sigma_{SI} = -.0679$, $t = -2.42$, $p < .05$, and it translated into a substantial latent correlation of $-.50$, indicating that for referent information seeking from supervisors, individual differences at initial organizational entry and individual differences in the rate of change (i.e., rate of linear increase) were negatively associated. That is, within the 4-month period of study, newcomers who started off (at initial organizational entry) seeking more referent information from supervisors increased such information seeking at a rate lower than that of those who started off seeking less such information. As shown in the pattern of fitted means reported above, the extent of referent information seeking was relatively low (on a 7-point rating scale) in all four time points. Thus, the negative association between initial status and rate of increase was not attributable to a ceiling effect due to the rating format used to obtain responses on information seeking.

Hypothesis 3 predicted that, over time, the extent to which newcomers engage in relationship building with coworkers will decrease. As shown in Table 3, evidence of fit provided by the no-growth model (Model P1) was mixed. The values of the AGFI, NNFI, and CFI fit indices suggested a reasonable model fit but both the SRMR and RMSEA values suggested a relatively poor model fit. The linear trajectory model (Model P2), on the other hand, provided a good fit to the data, AGFI = .99, NNFI = .99, CFI = .99, SRMR = .04, RMSEA = .87. The nested model comparison using the chi-square difference test showed that the linear trajectory model (Model P2) provided significant incremental fit over the no-growth model, $\Delta\chi^2 = 28.70$, $\Delta df = 3$, $p < .05$, indicating that a linear growth model represented the nature of intraindividual change over the four time points better than a no-growth model. The unspecified two-factor model (Model P3) also provided a good fit to the data and the nested model comparison showed that it provided significant incremental fit over the linear trajectory model, $\Delta\chi^2 = 9.67$, $\Delta df = 2$, $p < .05$. However, because the more constrained linear trajectory model already provided a good model fit with several of its fit indices reaching optimal values (i.e., AGFI, NNFI, and CFI values were close to 1.00), the linear trajectory model (Model P2) was selected, on the basis of parsimony, as the final model that most adequately described intraindividual change in relationship building with coworkers.

Figure 7 depicts the linear trajectory model (Model P2 with associated LISREL parameter estimates) for relationship building with coworkers. As shown in the figure, the R square values associated with the observed measures of relationship building at the

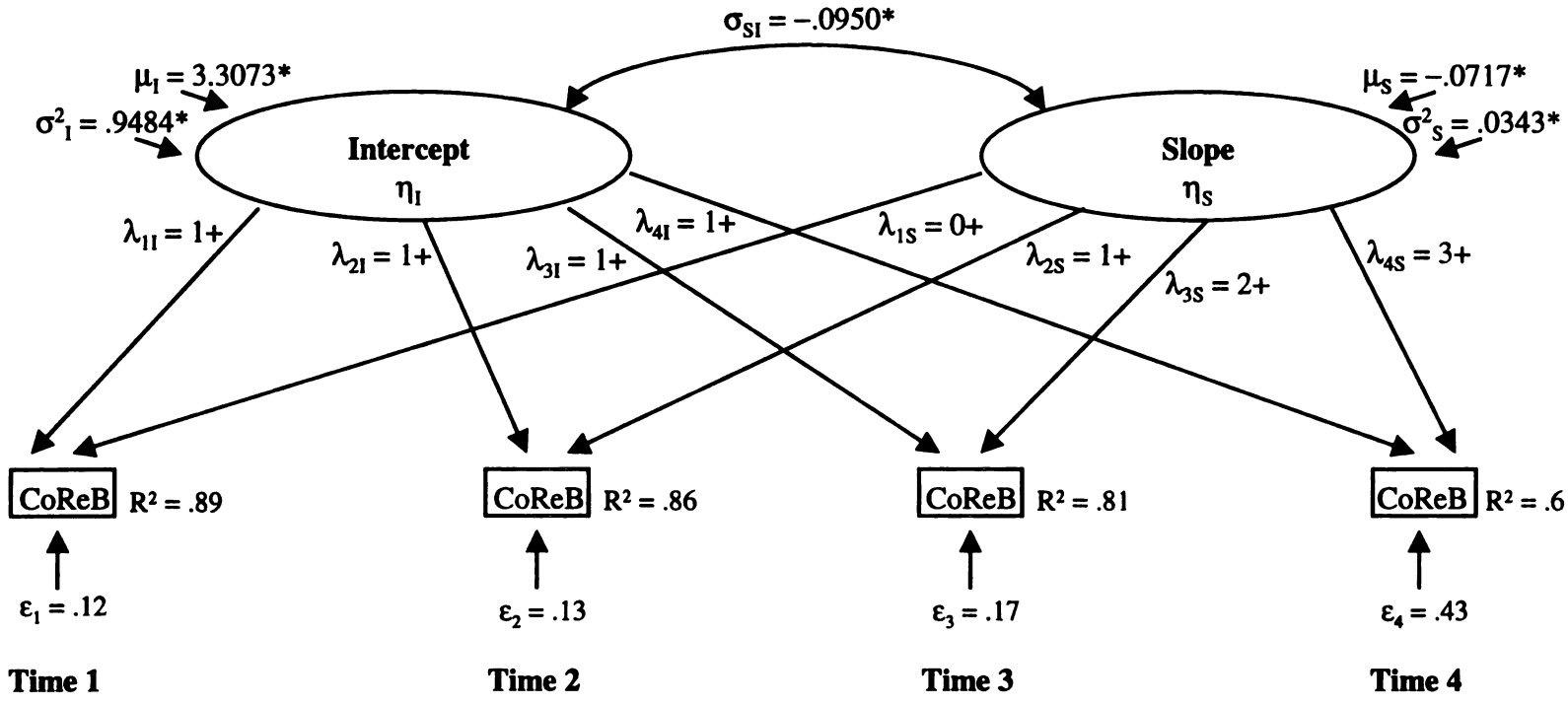


Figure 7 - Linear Trajectory Growth Model (Model P2) for Relationship Building with Coworkers (with associated LISREL 8 estimates).

Note. A parameter value with a plus sign indicates that the parameter is fixed at that value.

four time points are substantial indicating that most of the variance in the observed measures was accounted for by the growth factors. This suggests that most of the observed change in relationship building was related to time and that latent growth analysis was appropriate. The slope factor mean is negative and departs significantly from zero, $\mu_S = -.0717$, $t = -3.10$, $p < .05$, indicating that, over time, the extent to which newcomers build relationships with coworkers decreased linearly. The pattern of fitted means (not shown in figure) from this linear trajectory model, [3.31, 3.24, 3.16, 3.09], is consistent with a linearly decreasing trajectory. Hence, Hypothesis 3 was supported.

Figure 7 also shows that the variance of the intercept factor departs significantly from zero, $\sigma^2_I = .9484$, $t = 7.62$, $p < .05$, indicating that there were systematic individual differences in relationship building at initial organizational entry. The slope factor variance is also significantly different from zero, $\sigma^2_S = .0343$, $t = 2.97$, $p < .05$, indicating that newcomers differed in their rate of decrease in relationship building. The factor covariance between intercept and slope is negative and significant, $\sigma_{SI} = -.0950$, $t = -3.27$, $p < .05$, and it translated into a substantial latent correlation of $-.53$, indicating that for relationship building with coworkers, individual differences at initial organizational entry and individual differences in the rate of linear decrease were positively associated. That is, within the 4-month period of study, newcomers who started off (at initial organizational entry) with a higher frequency of relationship building with coworkers decreased such relationship building at a rate higher than that of those who started off

with a lower frequency of relationship building. As shown in the pattern of fitted means reported above, the extent of relationship building was moderately high (above the midpoint in a 5-point rating scale) in all four time points. Thus, the positive association between initial status and rate of decrease was not attributable to a floor effect due to the rating format used to obtain responses on relationship building.

Individual Predictors of Proactivity

Hypotheses 4 and 5 predicted associations between individual difference predictors (i.e., proactive personality and previous transition experience) and growth parameters (i.e., intercept and slope) of proactivity variables (i.e., technical information seeking from coworkers, referent information seeking from supervisors, relationship building with coworkers). To test these hypothesized associations as well as explore possible associations between the 7 newcomer background variables and growth parameters, each univariate latent growth model (i.e., Model P2) that best described the relevant proactivity variable was respecified to include all 9 predictor variables.

In these respecified univariate latent growth models, the parameters of interest are the structural parameter estimates corresponding to the direct effects from each predictor to the intercept and slope growth factors. Table 4 presents, for each proactivity variable, the standardized structural parameter estimates, γ's, of these direct effects. Note that because both technical information seeking from and relationship building with coworkers followed a negative (i.e., decreasing) linear trajectory, a negative sign associated with the predictor-slope structural effect indicates that the predictor and the

Table 4

Standardized Structural Parameter Estimates (γ's) of Direct Effects from Predictors to Intercept and Slope Growth Factors in Univariate Latent Growth Analyses of Proactivity Variables (N = 146)

Growth Model	ProacPer	PrevTran	Gender	Age	StudStat	GradAssist	Outjob	ResearchReq	GRE
CoTec									
Intercept (R^2= 15.51%)	-.13 (H4a)	.27 (H5a)	-.05	-.29	.29	.22	-.06	-.06	-.02
Slope (R^2 = 7.89%)	.08 (H4c)	.07 (H5d)	-.18	-.19	.14	.01	.21	.10	-.01

($\chi^2_{(23)}$ = 27.69;

AGFI = .90;

NNFI = .97;

CFI = .99;

SRMR = .03;

RMSEA = .04)

Growth Model / SuRef	ProactPer	PrevTran	Gender	Age	StudStat	GradAssist	Outjob	ResearchReq	GRE
Intercept (R^2 = 16.01%)	.13 (H4b)	.22 (H5b)	-.08	-.40*	.23	-.09	.17	.18*	.05
Slope (R^2 = 50.63%)	-.02	-.78*	.30*	.67*	-.27	-.01	-.48*	-.35*	.08

($\chi^2_{(23)}$ = 32.87;

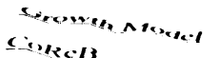
AGFI = .88;

NNFI = .94;

CFI = .98;

SRMR = .03;

RMSEA = .05)


Growth Model
GaRSB

Growth Model / CoReB	ProactPer	PrevTran	Gender	Age	StudStat	GradAssist	Outjob	ResearchReq	GRE
Intercept (R^2 = 21.09%)	.14 (H4e)	.20 (H5c)	.03	-.38*	.12	.20	-.15	.01	-.08
Slope (R^2 = 11.75%)	.12 (H4f)	.06	.04	.10	.01	-.13	-.16	-.13	.33*

($\chi^2_{(23)} = 23.53$;

AGFI = .94;

NNFI = .99;

CFI = .99;

SRMR = .02;

RMSEA = .01)

Note. The relevant hypotheses are indicated in parentheses. Variables abbreviated: CoTec = technical information seeking from coworkers; SuRef = referent information seeking from supervisors; CoReB = relationship building with coworkers; ProactPer = Bateman and Crant's (1993) proactive personality scale (theoretical range = 1 to 7); PrevTran = previous transition experience measure (theoretical range = 1 to 5); Gender = newcomer's gender (0 = male; 1 = female); Age = newcomer's age (in years); StudStat = newcomer's student status (0 = domestic; 1 = foreign); GradAssist = whether newcomer was holding a graduate assistantship (0 = no; 1 = yes); Outjob = newcomer's employment status outside his or her graduate assistantship (1 = no; 2 = part-time; 3 = full-time); ResearchReq = whether a research project was part of newcomer's degree requirement (0 = no; 1 = yes); GRE = newcomer's Graduate Record Examination scores (mean GRE percentiles converted to scores on a 0-5 continuous range). For ProacPer and PrevTran, the error variance of the predictor was fixed to a specific value computed from the formula $(1 - r_{xx})\sigma_x$ where r_{xx} is the Cronbach's alpha and σ_x is the observed variance of the predictor measure. For the remaining 7 predictors, the error variance was fixed at zero. * $p < .05$.

rate of decrease in proactivity were positively associated. Table 4 also presents the pseudo-R^2 statistic which was computed to provide an estimate of the proportion of variance of each growth factor accounted for by the total set of predictors (Willett & Sayer, 1994). This statistic is obtained by comparing the residual growth factor variances, ζ_I, ζ_S, which are partial variances controlling for the linear effects of the predictors, with the corresponding unconditional growth factor variances, σ^2_I, σ^2_S; that is, pseudo-$R^2 = (\sigma^2 - \zeta)/\sigma^2$. The respecified univariate latent growth models continued to provide good fit to the data as indicated by the model fit indices reported in Table 4.

Hypothesis 4a and 4b predicted that proactive personality will be positively correlated with the extent of technical information seeking from coworkers and referent information seeking from supervisors, respectively, at the point of organizational entry. As shown in Table 4, the structural effect from proactive personality to the intercept factor was small and not significant for both technical information seeking from coworkers ($\gamma = -.13$, $p > .05$) and referent information seeking from supervisors ($\gamma = .13$, $p > .05$). Hence, Hypothesis 4a and 4b were not supported.

Hypothesis 4c predicted that proactive personality will be positively correlated with the rate of decrease in technical information seeking from coworkers. Table 4 shows that the structural effect from proactive personality to the slope factor for technical information seeking from coworkers was small and not significant ($\gamma = .08$, $p > .05$). Hence, Hypothesis 4c was not supported. Hypothesis 4d predicted that the relationship between proactive personality and the rate of decrease in technical information seeking

from coworkers is mediated by the extent of technical information seeking at the point of organizational entry. As noted earlier in the plan for latent growth analyses, it was not meaningful to test this mediational hypothesis because it was already found that proactive personality and the rate of decrease in technical information seeking from coworkers were not associated (i.e., Hypothesis 4c was not supported).

Hypothesis 4e predicted that proactive personality will be positively correlated with the extent of relationship building with coworkers at the point of organizational entry and Hypothesis 4f predicted that proactive personality will be negatively correlated with the rate of decrease in relationship building with coworkers. As shown in Table 4, neither hypothesis was supported. The structural effects from proactive personality to the intercept factor ($\gamma = .14$, $p > .05$) and slope factor ($\gamma = .12$, $p > .05$) for relationship building with coworkers were small and not significant.

Hypothesis 5a, 5b, and 5c predicted that the amount of previous transition experience will be positively correlated with the extent of technical information seeking from coworkers, referent information seeking from supervisors, and relationship building with coworkers, respectively, at the point of organizational entry. As shown in Table 4, the structural effects from previous transition experience to the relevant intercept factor were positive and small to moderate although not significant: technical information seeking from coworkers ($\gamma = .27$, $p > .05$), referent information seeking from supervisors ($\gamma = .22$, $p > .05$), relationship building with coworkers ($\gamma = .20$, $p > .05$). Hence, there was some weak evidence for Hypothesis 5a, 5b, and 5c.

Hypothesis 5d predicted that the amount of previous transition experience will be positively correlated with the rate of decrease in technical information seeking from coworkers. Table 4 shows that the structural effect from previous transition experience to the slope factor for technical information seeking from coworkers was small and not significant ($\gamma = .07$, $p > .05$). Hence, Hypothesis 5d was not supported. Hypothesis 5e predicted that the relationship between the amount of previous transition experience and the rate of decrease in technical information seeking from coworkers is mediated by the extent of technical information seeking at the point of organizational entry. As noted above, it was not meaningful to test this mediational hypothesis because it was already found that previous transition experience and the rate of decrease in technical information seeking from coworkers were not associated (i.e., Hypothesis 5d was not supported).

No hypotheses were specified relating previous transition experience to rate of change in referent information seeking from supervisors and in relationship building with coworkers. As shown in Table 4, previous transition experience was not associated with rate of change in relationship building ($\gamma = .06$, $p > .05$). On the other hand, an unexpected and large negative association was found between previous transition experience and rate of change (increase) in referent information seeking from supervisors ($\gamma = -.78$, $p < .05$), providing strong evidence that newcomers who entered the organization with less previous transition experience increased their referent information seeking from supervisors at a rate higher than that of those with more previous transition experience.

Table 4 also presents the results of the exploratory analyses on possible associations between the 7 newcomer background variables and the growth parameters in each of the three proactivity variables. As shown in the table, differential patterns of predictor-growth parameter association existed across the proactivity variables. These differential patterns provided some evidence of discriminant validity among the proactivity variables both in terms of the construct assessed at initial status and the process of intraindividual change over time.

Specifically, an inspection of the standardized structural effects showed that, at initial organizational entry (i.e., intercept factor), newcomer's age was negatively associated with all three proactivity variables but the effect was relatively smaller for technical information seeking from coworkers (technical information, $\gamma = -.29$; referent information, $\gamma = -.40$; relationship building, $\gamma = -.38$). Student status was positively and moderately associated with the two information seeking variables (technical information, $\gamma = .29$; referent information, $\gamma = .23$) but not with relationship building ($\gamma = .12$), indicating that relative to domestic students foreign students were seeking more technical information from coworkers and referent information from supervisors but were building relationships with coworkers to a similar extent. Whether newcomers were holding a graduate assistantship was not associated with referent information seeking from supervisors ($\gamma = -.09$) but it showed small positive associations with technical information seeking from ($\gamma = .22$) and relationship building with ($\gamma = .20$) coworkers; that is, those holding an assistantship were seeking more technical information from

coworkers and building relationship with coworkers to a larger extent. The extent to which newcomers were employed in an outside job (i.e., from no to part-time to full-time outside employment) was positively associated with referent information seeking from supervisors ($\gamma = .17$) and negatively associated with relationship building with coworkers ($\gamma = -.15$) although both effects were small. Employment in outside job was not associated with technical information seeking from coworkers ($\gamma = -.06$). Finally, newcomers who were enrolled in a program in which a research project was part of their degree requirement were, relative to those without such a requirement, seeking more referent information from supervisors ($\gamma = .18$) although the effect was small. Research project requirement was not associated with technical information seeking from ($\gamma = -.06$) and relationship building with ($\gamma = .01$) coworkers.

An inspection of the standardized structural effects in Table 4 also showed that the pattern of associations between newcomer background variables and rate of change (i.e., slope factor) in proactivity differed across the three proactivity variables. Recall that because both technical information seeking from and relationship building with coworkers followed a negative (i.e., decreasing) linear trajectory, a negative sign associated with the predictor-slope structural effect indicates that the predictor and the rate of <u>decrease</u> in proactivity were <u>positively</u> associated. As shown in the table, there was a small effect between gender and rate of change in technical information seeking from coworkers ($\gamma = -.18$) and a moderate effect between gender and rate of change in referent information seeking from supervisors ($\gamma = .30$). Females decreased their

technical information seeking from coworkers at a rate higher than that of males and they increased their referent information seeking from supervisors at a rate higher than that of males. Gender and rate of change in relationship building with coworkers were not associated ($\gamma = .04$). There was a small association between age and rate of change in technical information seeking from coworkers ($\gamma = -.19$) indicating that older newcomers decreased their technical information seeking from coworkers at a rate higher than that of younger newcomers. Age and rate of change in referent information seeking from supervisors were highly and positively associated ($\gamma = .67$) indicating that older newcomers increased their referent information seeking from supervisors at a rate higher than that of younger newcomers. Age and rate of change in relationship building with coworker were not associated ($\gamma = .10$). Student status was negatively and moderately associated with referent information seeking from supervisors ($\gamma = -.27$) but not associated with technical information seeking from ($\gamma = .14$) or relationship building with ($\gamma = .01$) coworkers. That is, foreign students increased their referent information seeking from supervisors at a rate lower than that of domestic students but both domestic and foreign students did not differ in their rates of change in technical information seeking from and relationship building with coworkers. The extent of outside employment was negatively associated with rate of decrease in technical information seeking from coworkers ($\gamma = .21$) but positively associated with rate of decrease in relationship building ($\gamma = -.16$) although both effects were small. The extent of outside employment and rate of increase in referent information seeking from supervisors were highly and negatively

associated ($\gamma = -.48$). Newcomers who were enrolled in a program in which a research project was part of their degree requirement increased their referent information seeking from supervisors at a rate lower than that of those without such a requirement ($\gamma = -.35$). Research project requirement was not associated with rates of change in technical information seeking from ($\gamma = .10$) and relationship building with ($\gamma = -.13$) coworkers. Finally, newcomers with higher GRE scores decreased their rate of relationship building with coworkers at a rate lower than that of those with lower GRE scores ($\gamma = .33$).

An inspection of the standardized structural effects and the pseudo-R^2's in Table 4 revealed an interesting differential pattern of results on the growth parameters across the proactivity variables. In general, the associations found between the predictors and all three proactivity variables at initial organizational entry (i.e., predictor-intercept associations) were small to moderate. The inclusion of the set of 9 predictors reduced the unexplained variance in initial status by 15.51%, 16.01%, and 21.09% for technical information seeking from coworkers, referent information seeking from supervisors, and relationship building with coworkers, respectively. That is, as a set, the 9 predictors were of relatively equal importance in the prediction of interindividual differences in initial status across the three proactivity variables. On the other hand, the associations between the predictors and rate of change in proactivity (i.e., predictor-slope associations) were generally small for technical information seeking from and relationship building with coworkers but substantial for referent information seeking from supervisors. As indicated by the relevant pseudo-R^2's, the inclusion of the set of 9 predictors reduced the proportion

of unexplained variance in rate of change to a much larger extent for referent information seeking from supervisors (50.63%) than for technical information seeking from (7.89%) and relationship building with (11.75%) coworkers. That is, as a set, the 9 predictors were of substantially more importance in the prediction of interindividual differences in rate of change for referent information seeking from supervisors than for technical information seeking from and relationship building with coworkers. Also, for both technical information seeking from and relationship building with coworkers, the proportion of variance accounted for by the set of 9 predictors for initial status was almost twice that for rate of change. In contrast, for referent information seeking from supervisors, the proportion of variance accounted for by the same set of 9 predictors for rate of change was more than three times that for initial status. As reported earlier, individuals with higher rates of increase in referent information seeking from supervisors tended to be newcomers who are females, older, domestic students, and those who had entered the organization with less previous transition experience. They also tended to be newcomers who were enrolled in a program in which a research project was not part of their degree requirement and those who did not have employment outside their graduate assistantship.

Proximal Adaptation Outcomes

Hypothesis 6 predicted the nature of the trajectory that best describes intraindividual change over time on each of the proximal adaptation outcome variables (i.e., task mastery, role clarity, social integration). Specifically, it was predicted that,

over time, task mastery (Hypothesis 6a), role clarity (Hypothesis 6b), and social integration (Hypothesis 6c) will increase. An inspection of the means from Time 1 to Time 4 for each focal change variable (see Table 1) indicates patterns that are consistent with the hypothesized direction of intraindividual change over time in these proximal adaptation outcome variables. A general upward trend in the means was observed for task mastery, role clarity, and social integration. As in the case of proactivity variables, the true growth trajectory in each of these proximal adaptation outcome variables was established from results of univariate latent growth analyses.

Table 5 presents the series of nested univariate latent growth models fit separately to each of the three proximal adaptation outcome variables. For each proximal adaptation outcome variable, the first model (Model A1) fit to the data was the "no-growth" which specified that no growth occurred at all over the four time points (i.e., a horizontal trajectory). As shown in the table, the values of the AGFI, NNFI, and CFI fit indices suggested that the no-growth model fit the data on task mastery reasonably well but both the SRMR and RMSEA values suggested a relatively poor model fit. The linear trajectory model (Model A2) failed to converge to a proper solution after 1000 iterations. An inspection of the preliminary solution revealed large standardized residuals between measures at adjacent time points. Thus, the next model, a pairwise correlated errors linear trajectory model (Model A2i) in which the error covariances between adjacent time points were freely estimated, was fit to the data on task mastery. This model converged to a proper solution after 9 iterations and provided a moderate fit as shown by the fit

Table 5

Model Fit Indices and Nested Model Comparisons in Univariate Latent Growth Analyses of Proximal Adaptation Outcomes (N = 146)

Variable/Model	χ^2	df	Model Comparison	$\Delta\chi^2$	Δdf	AGFI	NNFI	CFI	SRMR	RMSEA
TaskM										
Model A1 (no-growth)	31.78*	8				.94	.94	.92	.12	.14
Model A2[a] (linear trajectory)	--	--	--	--	--	--	--	--	--	--
Model A2i (linear trajectory with pairwise [between adjacent times] error covariance)	13.89*	2	A1 vs. A2i	17.89*	6	1.00	.88	.96	.00	.20
Model A2ii (linear trajectory with T2-T3 error covariance)	15.89*	4	A2i vs. A2ii	-2.00	2	.98	.94	.96	.04	.14
Model A3[a] (unspecified trajectory)	--	--	--	--	--	--	--	--	--	--

Variable/Model	χ^2	df	Model Comparison	$\Delta\chi^2$	Δdf	AGFI	NNFI	CFI	SRMR	RMSEA
RoleC										
Model A1[a]	--	--	--	--	--	--	--	--	--	--
(no-growth)										
Model A2[a]	--	--	--	--	--	--	--	--	--	--
(linear trajectory)										
Model A2i	2.44	2				1.00	.99	.99	.00	.04
(linear trajectory with pairwise [between adjacent times] error covariance)										
Model A2ii	3.11	4	A2i vs. A2ii	-.67	2	.99	1.00	1.00	.02	.00
(linear trajectory with T2-T3 error covariance)										
Model A3[a]	--	--	--	--	--	--	--	--	--	--
(unspecified trajectory)										

Variable/Model	χ^2	df	Model Comparison	$\Delta\chi^2$	Δdf	AGFI	NNFI	CFI	SRMR	RMSEA
SocIn										
Model A1 (no-growth)	83.79*	8				.87	.87	.82	.15	.26
Model A2[a] (linear trajectory)	--	--	--	--	--	--	--	--	--	--
Model A2iii (linear trajectory with T1-T2 and T2-T3 error covariances)	.80	3	A1 vs. A2iii	82.99*	5	.99	1.00	1.00	.01	.00
Model A3[a] (unspecified trajectory)	--	--	--	--	--	--	--	--	--	--

Note. Variables abbreviated: TaskM = task mastery; RoleC = role clarity; SocIn = social integration. Model A2ii was selected as the final model for TaskM (see Figure 8) and RoleC (see Figure 9). Model A2iii was selected as the final model for SocIn (see Figure 10).

* $p < .05$.

[a] This model failed to converge to a proper solution after 1000 iterations.

indices in the table. This model also provided a significant incremental fit over the no-growth model, $\Delta\chi^2 = 17.89$, $\Delta df = 6$, $p < .05$. An inspection of the solution revealed that the error covariance between Time 2 and Time 3 was significant, $p < .05$, but the error covariances between Time 1 and Time 2 and between Time 3 and Time 4 were not significant. Therefore, a simpler linear trajectory model (Model A2ii) which freely estimated the error covariance between Time 2 and Time 3 but no other error covariances was fit to the data. This simpler model provided a reasonable fit to the data and did not result in a significant reduction of model fit from the previous model (Model A2i), $\Delta\chi^2 = -2.00$, $\Delta df = 2$, $p > .05$. An unspecified two-factor model (Model A3) failed to converge to a proper solution after 1000 iterations. Hence, on the basis of parsimony and model fit, the linear trajectory model which specified correlated errors between Time 2 and Time 3 (Model A2ii) was selected as the final model that best described intraindividual change in task mastery.

Figure 8 depicts this linear trajectory model (Model A2ii with associated LISREL parameter estimates) for task mastery. As shown in the figure, the R square values associated with the observed measures of task mastery at the four time points are substantial indicating that most of the variance in the observed measures was accounted for by the growth factors. This suggests that most of the observed change in task mastery was related to time and that latent growth analysis was appropriate. The slope factor mean is positive and departs significantly from zero, $\mu_s = .0318$, $t = 1.88$, $p < .05$, indicating that, over time, the extent to which newcomers perceived they have mastered

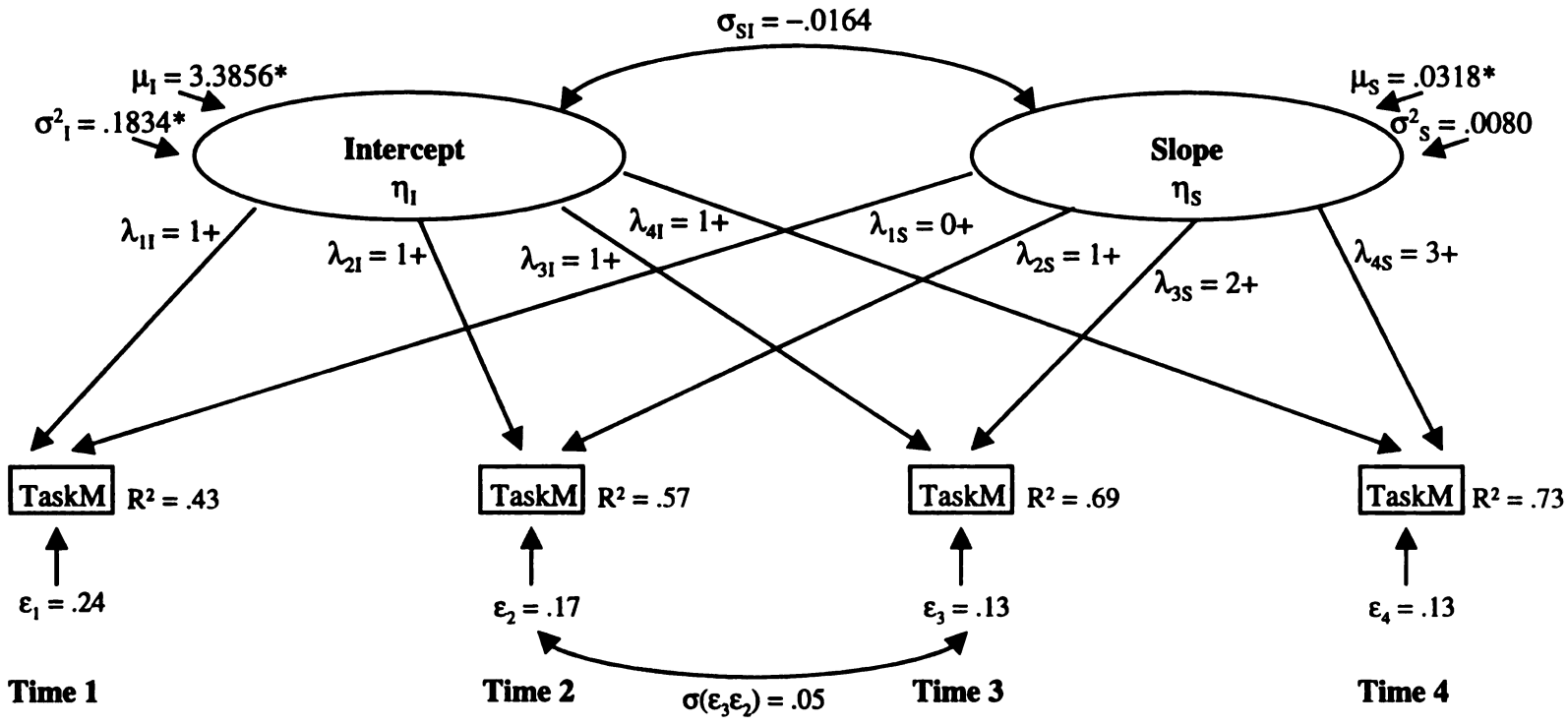


Figure 8 - Linear Trajectory Growth Model (Model A2ii) for Task Mastery (with associated LISREL 8 estimates).
Note. A parameter value with a plus sign indicates that the parameter is fixed at that value.

their job tasks increased linearly. The pattern of fitted means (not shown in figure) from this linear trajectory model, [3.39, 3.42, 3.45, 3.48], is consistent with a linearly increasing trajectory. Hence, Hypothesis 6a was supported.

Figure 8 also shows that the variance of the intercept factor departs significantly from zero, $\sigma^2_I = .1834$, $t = 4.21$, $p < .05$, indicating that there were systematic individual differences in perceived task mastery at initial organizational entry. The slope factor variance, however, is not significantly different from zero, $\sigma^2_S = .0080$, $t = 1.13$, $p > .05$, indicating that newcomers did not differ in their rate of increase in perceived task mastery. Because there is little slope factor variance, it is not surprising that the factor covariance between intercept and slope is not significant, $\sigma_{SI} = .0164$, $t = 1.24$, $p > .05$.

Both the no-growth model (Model A1) and the linear trajectory model (Model A2) for role clarity failed to converge to a solution after 1000 iterations which suggested that the models were unlikely to fit the data well. Following the case of task mastery, the pairwise correlated errors linear trajectory model (Model A2i) was fit to the data on role clarity. This model converged to a proper solution after 6 iterations and it provided a good fit (see Table 5). An inspection of the solution also revealed only a significant error covariance between Time 2 and Time 3. Therefore, the simpler model which freely estimated the Time 2-3 error covariance but fixed the other error covariances to zero (Model A2ii) was fit to the data. This simpler model provided a good fit and it did not result in a significant reduction in fit from the previous model, (Model A2i), $\Delta\chi^2 = -.67$, $\Delta df = 2$, $p > .05$. An unspecified two-factor model (Model A3) failed to converge to a

proper solution after 1000 iterations. Hence, on the basis of parsimony and model fit, the linear trajectory model which specified correlated errors between Time 2 and Time 3 (Model A2ii) was selected as the final model that best described intraindividual change in role clarity.

Figure 9 depicts this linear trajectory model (Model A2ii with associated LISREL parameter estimates) for role clarity. As shown in the figure, the R square values associated with the observed measures of role clarity at the four time points are substantial indicating that most of the variance in the observed measures was accounted for by the growth factors. This suggests that most of the observed change in role clarity was related to time and that latent growth analysis was appropriate. The slope factor mean is positive and departs significantly from zero, $\mu_S = .0527$, $t = 3.06$, $p < .05$, indicating that, over time, the extent to which newcomers perceived they have achieved role clarity increased linearly. The pattern of fitted means (not shown in figure) from this linear trajectory model, [3.47, 3.53, 3.58, 3.63], is consistent with a linearly increasing trajectory. Hence, Hypothesis 6b was supported.

Figure 9 also shows that the variance of the intercept factor departs significantly from zero, $\sigma^2_I = .1781$, $t = 3.89$, $p < .05$, indicating that there were systematic individual differences in perceived role clarity at initial organizational entry. The slope factor variance also departs significantly from zero, $\sigma^2_S = .0161$, $t = 2.19$, $p < .05$, indicating that newcomers differed in their rate of increase in perceived role clarity. The factor covariance between intercept and slope is not significant, $\sigma_{SI} = .0060$, $t = .42$, $p > .05$,

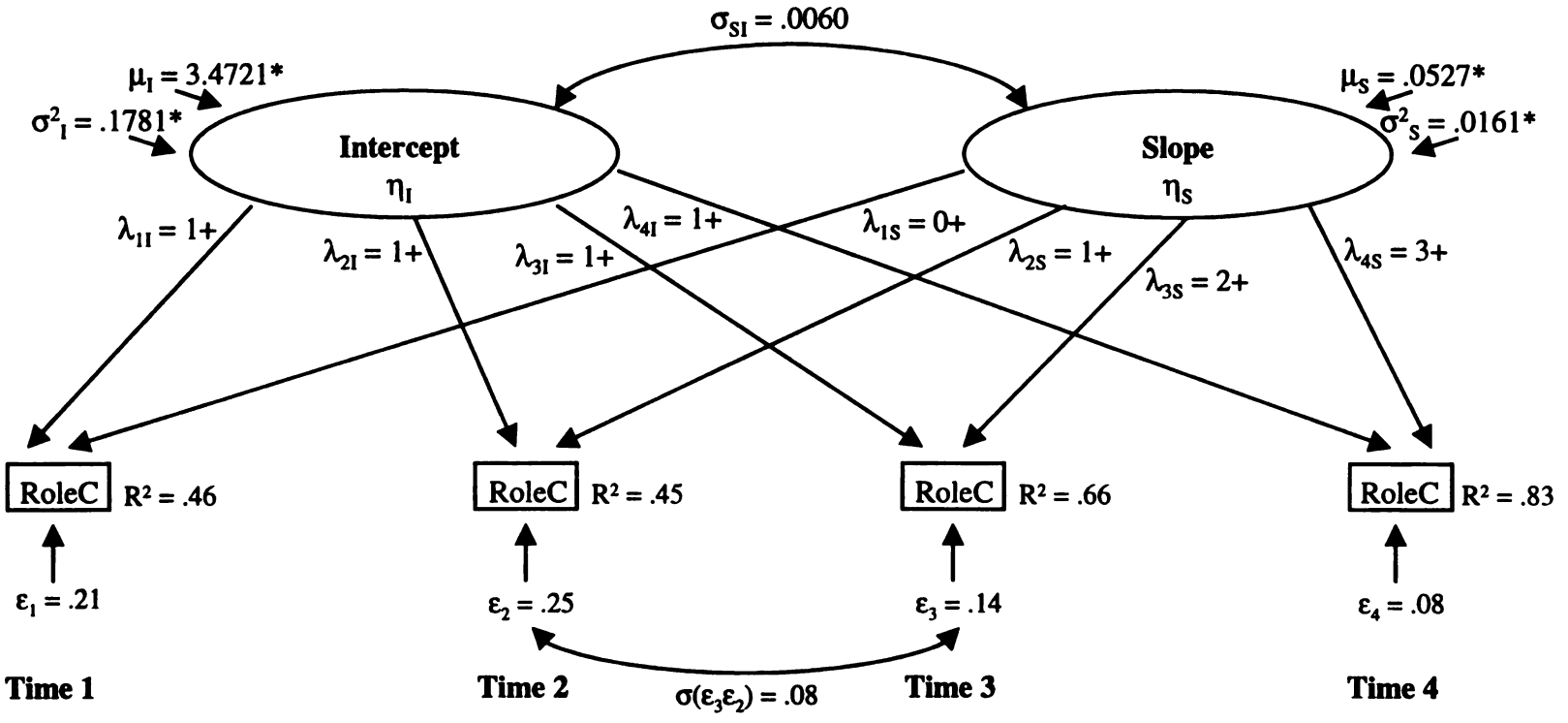


Figure 9 - Linear Trajectory Growth Model (Model A2ii) for Role Clarity (with associated LISREL 8 estimates).

Note. A parameter value with a plus sign indicates that the parameter is fixed at that value.

indicating that for role clarity, individual differences at initial organizational entry and individual differences in the rate of change (i.e., rate of linear increase) were not associated.

As shown in Table 5, the no-growth model (Model A1) provided a poor fit to the data on social integration. The linear trajectory model (Model A2) failed to converge to a proper solution after 1000 iterations which suggested that the model was unlikely to fit the data well. An inspection of the preliminary solution revealed large standardized residuals between Time 1 and Time 2 and between Time 2 and Time 3. Therefore. a linear trajectory model which freely estimated the Time 1-2 error covariance and the Time 2-3 error covariance (Model A2iii) was fit to the data. This model converged to a proper solution after 7 iterations and it provided a good fit to the data (see Table 5). The model also provided significant incremental fit over the no-growth model, $\Delta\chi^2 = 82.99$, $\Delta df = 5$, $p < .05$. The unspecified two-factor model (Model A3) failed to converge to a proper solution after 1000 iterations. Hence, on the basis of parsimony and model fit, the linear trajectory model specified as Model A2iii was selected as the final linear model that best described intraindividual change in social integration.

Figure 10 depicts this linear trajectory model (Model A2iii with associated LISREL parameter estimates) for social integration. As shown in the figure, the R square values associated with the observed measures of social integration at the four time points are substantial indicating that most of the variance in the observed measures was accounted for by the growth factors. This suggests that most of the observed change in

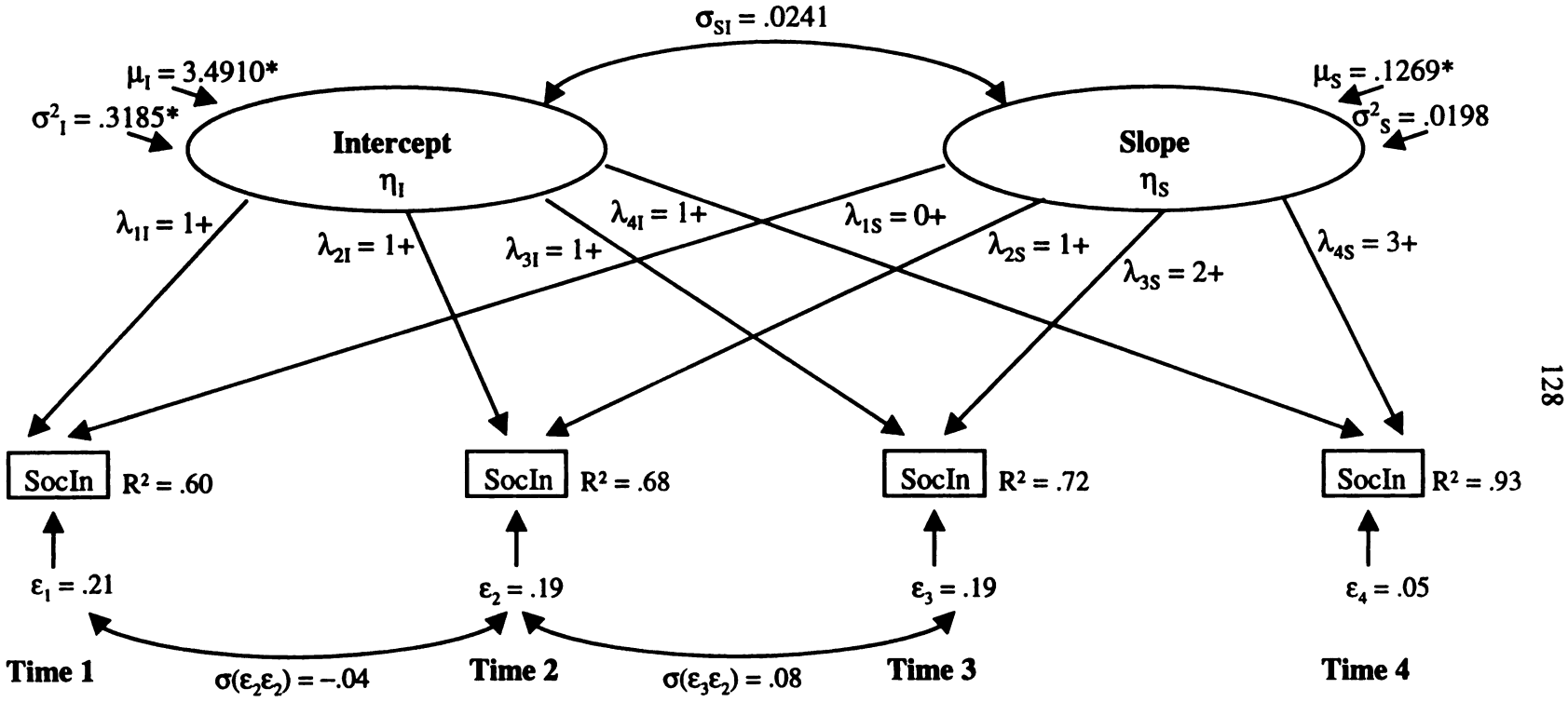


Figure 10 - Linear Trajectory Growth Model (Model A2iii) for Social Integration (with associated LISREL 8 estimates).

Note. A parameter value with a plus sign indicates that the parameter is fixed at that value.

social integration was related to time and that latent growth analysis was appropriate. The slope factor mean is positive and departs significantly from zero, $\mu_S = .1269$, $t = 7.74$, $p < .05$, indicating that, over time, the extent to which newcomers perceived they were socially integrated increased linearly. The pattern of fitted means (not shown in figure) from this linear trajectory model, [3.49, 3.62, 3.75, 3.87], is consistent with a linearly increasing trajectory. Hence, Hypothesis 6c was supported.

Figure 10 also shows that the variance of the intercept factor departs significantly from zero, $\sigma^2_I = .3185$, $t = 3.41$, $p < .05$, indicating that there were systematic individual differences in perceived social integration at initial organizational entry. The slope factor variance, however, is not significantly different from zero, $\sigma^2_S = .0198$, $t = 1.32$, $p > .05$, indicating that newcomers did not differ in their rate of increase in perceived social integration. Because there is little slope factor variance, it is not surprising that the factor covariance between intercept and slope is not significant, $\sigma_{SI} = .0241$, $t = .78$, $p > .05$.

Associations Between Proactivity Variables and Proximal Adaptation Outcomes

Hypothesis 7 and 8 predicted associations between each proactivity variable, either in terms of its initial status or rate of change, with the rate of change of a specific proximal adaptation outcome. Table 6 summarizes the results of the multivariate latent growth analyses performed to test these cross-domain hypotheses. The table presents the between-growth factors latent correlations, which are the parameters of interest in cross-domain assessments, obtained from three separate multivariate growth models, each fit to the corresponding observed 8 X 8 covariance matrix and vector of 8 means constituted by

Table 6

Latent Correlations of Growth Factors in Multivariate Latent Growth Analyses of Proactivity-Proximal Adaptation Outcome Associations (N = 146)

Technical Information Seeking (TS)-Task Mastery (TM) Multivariate Model

[$\chi^2_{(21)} = 37.94$*; AGFI = .94; NNFI = .96; CFI = .97; SRMR = .07; RMSEA = .07]

	Intercept, $\eta_{I(TS)}$	Slope, $\eta_{S(TS)}$	Intercept, $\eta_{I(TM)}$	Slope, $\eta_{S(TM)}$
Intercept, $\eta_{I(TS)}$	--			
Slope, $\eta_{S(TS)}$	-.36	--		
Intercept, $\eta_{I(TM)}$	-.29*	.00	--	
Slope, $\eta_{S(TM)}$	fixed at zero	fixed at zero	fixed at zero	--

Referent Information Seeking (RS)-Role Clarity (RC) Multivariate Model

[$\chi^2_{(17)} = 27.65$*; AGFI = .91; NNFI = .97; CFI = .98; SRMR = .05; RMSEA = .06]

	Intercept, $\eta_{I(RS)}$	Slope, $\eta_{S(RS)}$	Intercept, $\eta_{I(RC)}$	Slope, $\eta_{S(RC)}$
Intercept, $\eta_{I(RS)}$	--			
Slope, $\eta_{S(RS)}$	-.52*	--		
Intercept, $\eta_{I(RC)}$	-.05	.13	--	
Slope, $\eta_{S(RC)}$	-.04 (H7b)	-.04 (H8b)	.20	--

Relationship Building (RB)-Social Integration (SI) Multivariate Model

[$\chi^2_{(20)} = 99.36$*; AGFI = .76; NNFI = .89; CFI = .92; SRMR = .09; RMSEA = .16]

	Intercept, $\eta_{I(RB)}$	Slope, $\eta_{S(RB)}$	Intercept, $\eta_{I(SI)}$	Slope, $\eta_{S(SI)}$
Intercept, $\eta_{I(RB)}$	--			
Slope, $\eta_{S(RB)}$	-.55*	--		
Intercept, $\eta_{I(SI)}$	.81*	-.45*	--	
Slope, $\eta_{S(SI)}$	fixed at zero	fixed at zero	fixed at zero	--

* $p < .05$.

the relevant pair of proactivity and adaptation variables specified in each cross-domain hypothesis. Each multivariate model retained the relevant specifications in its two component univariate models. Note, however, it was not meaningful to test the cross-domain hypotheses involving associations with the rate of change in task mastery (Hypothesis 7a and 8a) or rate of change in social integration (Hypothesis 7c and 8c) because the earlier univariate latent growth analyses had established that there were no significant individual differences in rate of change in each of these two proximal adaptation outcomes. Nevertheless, the relevant multivariate latent growth models were fit to the data for the purpose of exploring cross-domain associations involving the initial status of each of the two proximal adaptation outcomes. For both task mastery and social integration (in separate multivariate models), the slope factor variance (representing individual differences in rate of change) and the covariances between the slope and the other three growth factors in the multivariate model were fixed to zero to ensure proper solution and meaningful interpretation.

As indicated by the model fit indices reported in Table 6, both the technical information seeking-task mastery multivariate growth model and the referent information seeking-role clarity multivariate growth model produced good fit to the data and the relationship building-social integration multivariate growth model produced a moderate fit to the data. In addition, for each multivariate model the R squares associated with the 8 observed measures, growth factor means, variances, and within-domain covariances (not shown in Table 6) are almost identical to their corresponding values obtained in the

corresponding final univariate models reported earlier (Figures 5 to 10). This suggests that there were no anomalies in the results when the univariate models were combined.

It was predicted that the rate of increase in task mastery would be positively correlated with initial status (Hypothesis 7a) and rate of decrease (Hypothesis 8a) in technical information seeking from coworkers. As noted above, it was not meaningful to test these two hypotheses because there were no significant individual differences in the rate of increase in task mastery. An exploratory inspection of the other cross-domain associations in the technical information seeking-task mastery multivariate model reported in Table 6 revealed that, at initial organizational entry, newcomers who perceived that they were low in task mastery were seeking technical information seeking from coworkers to a significantly larger extent than those who perceived that they were high in task mastery, $R_{I(TM)I(TS)} = -.29$, $p < .05$. Task mastery at initial organizational entry and the rate of decrease in technical information seeking from coworkers were not associated, $R_{I(TM)S(TS)} = .00$, $p > .05$.

It was predicted that the rate of increase in role clarity would be positively correlated with initial status (Hypothesis 7b) but negatively correlated with rate of increase (Hypothesis 8b) in referent information seeking from supervisors. As shown in the referent information seeking-role clarity multivariate model reported in Table 6, neither hypothesis was supported, $R_{S(RC)I(RS)} = -.04$, $p > .05$; $R_{S(RC)S(RS)} = -.04$, $p > .05$. Exploratory inspection of the other cross-domain associations in the multivariate model revealed that newcomers' perceptions of role clarity at initial organizational entry were

not significantly associated with their initial status, $R_{I(RC)I(RS)} = -.05$, $p > .05$, or rate of increase, $R_{I(RC)S(RS)} = .13$, $p > .05$, in referent information seeking from supervisors.

It was predicted that the rate of increase in social integration would be positively correlated with initial status (Hypothesis 7c) and rate of decrease (Hypothesis 8c) in relationship building with coworkers. As noted above, it was not meaningful to test these two hypotheses because there were no significant individual differences in the rate of increase in social integration. An exploratory inspection of the other cross-domain associations in the relationship building-social integration multivariate model reported in Table 6 revealed large effects that were not hypothesized. Specifically, at initial organizational entry, newcomers who were building relationships with coworkers to a large degree were perceiving that they were socially integrated to a larger extent than those who were not as actively building relationships, $R_{I(SI)I(RB)} = .81$, $p < .05$. In addition, newcomers who, at initial organizational entry, perceived that they were more socially integrated were decreasing their relationship building with coworkers at a rate higher than that of those who perceived that they were less socially integrated, $R_{I(SI)S(RB)} = -.45$, $p < .05$.

Individual Predictors of Proximal Adaptation Outcomes

Hypotheses 9 to 11 predicted associations between individual predictors (i.e., proactive personality and previous transition experience) and growth parameters (i.e., intercept and slope) of proximal adaptation outcomes (i.e., task mastery, role clarity, social integration). To test these hypothesized associations as well as explore possible

associations between the 7 newcomer background variables and growth parameters, each univariate latent growth model that best described the relevant adaptation outcome (i.e., Model A2ii for task mastery and role clarity; Model A2iii for social integration) was respecified to include all 9 predictor variables. Because there were no significant individual differences in rate of change for both task mastery and social integration, it was not meaningful to model associations between predictors and the slope growth factors for these two proximal adaptation outcomes. Thus, in the respecified univariate latent growth models for task mastery and social integration, the structural effects from all 9 predictors to the slope factor were fixed at zero.

Table 7 presents, for each proximal adaptation outcome, the standardized structural parameter estimates, γ's, of the direct effects from predictors to growth factors. Table 7 also presents the pseudo-R^2 statistic which provides an estimate of the proportion of variance of each growth factor accounted for by the total set of predictors. As indicated by the model fit indices reported in the table, all three respecified univariate latent growth models provided a reasonable fit to the relevant data.

Hypothesis 9a predicted that proactive personality will be positively correlated with the rate of increase in task mastery and Hypothesis 9b predicted that this relationship is mediated by the extent of technical information seeking from coworkers at the point of organizational entry. Similarly, Hypothesis 9c predicted that the amount of previous transition experience will be positively correlated with the rate of increase in task mastery and Hypothesis 9d predicted that this relationship is mediated by the extent of technical

Table 7

Standardized Structural Parameter Estimates (γ's) of Direct Effects from Predictors to Intercept and Slope Growth Factors in Univariate Latent Growth Analyses of Proximal Adaptation Outcomes (N = 146)

Growth Model	ProacPer	PrevTran	Gender	Age	StudStat	GradAssist	Outjob	ResearchReq	GRE
TaskM									
Intercept (R^2= 11.64%)	.27*	-.14	.03	.15	-.01	.15	-.04	-.02	.00
Slope[a]	--	--	--	--	--	--	--	--	--
($\chi^2_{(31)}$ = 59.50;									
AGFI = .87;									
NNFI = .86;									
CFI = .95;									
SRMR = .04;									
RMSEA = .08)									

Growth Model	ProactPer	PrevTran	Gender	Age	StudStat	GradAssist	Outjob	ResearchReq	GRE
RoleC									
Intercept (R^2 = 23.20%)	.44*	-.21	.10	.19	-.09	-.04	-.02	-.21	.13
Slope (R^2 = 27.93%)	-.01 (H10a)	-.07 (10c)	-.18	-.02	.21	.08	-.27	-.13	-.29*

($\chi^2_{(22)}$ = 39.19;

AGFI = .86;

NNFI = .88;

CFI = .97;

SRMR = .03;

RMSEA = .07)

Growth Model	ProactPer	PrevTran	Gender	Age	StudStat	GradAssist	Outjob	ResearchReq	GRE
SocIn									
Intercept (R^2 = 16.51%)	.30	.19	-.02	-.25	.08	.19	-.10	-.23*	.01
Slope[a]	--	--	--	--	--	--	--	--	--

($\chi^2_{(30)} = 35.68$;

AGFI = .90;

NNFI = .98;

CFI = .99;

SRMR = .04;

RMSEA = .04)

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[a] Structural parameters from all predictors to this slope growth factor were fixed at zero.

Note. The relevant hypotheses are indicated in parentheses. Variables abbreviated: TaskM = task mastery; RoleC = role clarity; SocIn = social integration; ProactPer = Bateman and Crant's (1993) proactive personality scale (theoretical range = 1 to 7); PrevTran = previous transition experience measure (theoretical range = 1 to 5); Gender = newcomer's gender (0 = male; 1 = female); Age = newcomer's age (in years); StudStat = newcomer's student status (0 = domestic; 1 = foreign); GradAssist = whether newcomer was holding a graduate assistantship (0 = no; 1 = yes); Outjob = newcomer's employment status outside his or her graduate assistantship (1 = no; 2 = part-time; 3 = full-time); ResearchReq = whether a research project was part of newcomer's degree requirement (0 = no; 1 = yes); GRE = newcomer's Graduate Record Examination scores (mean GRE percentiles converted to scores on a 0-5 continuous range). For ProacPer and PrevTran, the error variance of the predictor was fixed to a specific

value computed from the formula $(1 - r_{XX})\sigma_X$ where r_{XX} is the Cronbach's alpha and σ_X is the observed variance of the predictor measure. For the remaining 7 predictors, the error variance was fixed at zero.

* $p < .05$.

information seeking from coworkers at the point of organizational entry. It was not meaningful to test these four hypotheses because it had been established earlier that there were no significant individual differences in the rate of increase in task mastery. As noted above, the respecified univariate model for task mastery did not specify any structural effects from predictors to the slope factor.

Hypothesis 10a predicted that proactive personality will be positively correlated with the rate of increase in role clarity and Hypothesis 10b predicted that this relationship is mediated by the extent of referent information seeking from supervisors at the point of organizational entry. As shown in Table 7, the structural effect from proactive personality to the slope factor for role clarity did not depart significantly from zero, $\gamma = -.01$, $p > .05$; hence, Hypothesis 10a was not supported. Because proactive personality did not predict rate of increase in role clarity (i.e., Hypothesis 10a was not supported), it was not meaningful to test the mediational relationship predicted in Hypothesis 10b. Although not hypothesized, proactive personality was found to be positively correlated with the intercept factor for role clarity, $\gamma = .44$, $p < .05$; that is, newcomers who scored higher on proactive personality perceived higher role clarity at the point of organizational entry.

Hypothesis 10c predicted that the amount of previous transition experience will be positively correlated with the rate of increase in role clarity and Hypothesis 10d predicted that this relationship is mediated by the extent of referent information seeking from supervisors at the point of organizational entry. As shown in Table 7, the structural effect

from previous transition experience to the slope factor for role clarity did not depart significantly from zero, $\gamma = -.07$, $p > .05$; hence, Hypothesis 10c was not supported. Because previous transition experience did not predict rate of increase in role clarity (i.e., Hypothesis 10c was not supported), it was not meaningful to test the mediational relationship predicted in Hypothesis 10d. Table 7 also shows a small negative correlation (not hypothesized) between previous transition experience and the intercept factor for role clarity, $\gamma = -.21$, although the effect was not significant, $p > .05$. Perhaps newcomers with a higher amount of previous transition experience perceived lower role clarity at the point of organizational entry.

Hypothesis 11a predicted that proactive personality will be positively correlated with the rate of increase in social integration and Hypothesis 11b predicted that this relationship is mediated by the extent of relationship building with coworkers at the point of organizational entry. Similarly, Hypothesis 11c predicted that the amount of previous transition experience will be positively correlated with the rate of increase in social integration and Hypothesis 11d predicted that this relationship is mediated by the extent of relationship building with coworkers at the point of organizational entry. It was not meaningful to test these four hypotheses because it had been established earlier that there were no significant individual differences in the rate of increase in social integration. As noted above, the respecified univariate model for social integration did not specify any structural effects from predictors to the slope factor.

Table 7 also presents the results of the exploratory analyses on possible associations between the 7 newcomer background variables and the growth parameters in each of the three proximal adaptation outcomes. As shown in the table, differential patterns of predictor-intercept parameter association existed across the proximal adaptation outcomes, although all effects were small. These differential patterns provided some evidence of discriminant validity among the proximal adaptation outcomes assessed at initial status. Specifically, an inspection of the standardized structural effects showed that, at initial organizational entry (i.e., intercept factor), newcomer's age was positively correlated with task mastery, $\gamma = .15$, and role clarity, $\gamma = .19$, but negatively correlated with social integration, $\gamma = -.25$. Whether newcomers were holding a graduate assistantship was positively associated with task mastery, $\gamma = .15$, and social integration, $\gamma = .19$, but not associated with role clarity, $\gamma = -.04$. That is, at initial organizational entry, newcomers holding an assistantship were more likely to perceive that they had mastered their job tasks and were socially integrated than those without an assistantship. At initial organizational entry, newcomers who were enrolled in a program in which a research project was part of their degree requirement, relative to those without such a requirement, perceived lower levels of role clarity, $\gamma = -.21$, and social integration, $\gamma = -.23$. Finally, the pseudo-R^2 statistics for the intercept factors showed that the inclusion of the set of 9 predictors reduced the proportion of unexplained variance in initial status by a larger extent for role clarity (23.20%) than for task mastery (11.64%) and social integration (16.51%).

Because no predictor-slope parameter associations were modeled for two of the three proximal adaptation outcomes, there was no explicit assessment of differential patterns of associations between newcomer background characteristics and rate of change across the three outcomes. Note, however, that there was some evidence of discriminant validity among the three outcomes in terms of the process of intraindividual change over time: as reported earlier, there were significant individual differences in rate of increase for role clarity but not for task mastery and social integration. In addition, whereas it was not meaningful to associate rate of change in task mastery or social integration with newcomer background characteristics (because there were no significant individual differences in the rate of change), Table 7 shows that individuals with higher rates of increase in role clarity tended to be newcomers who are males, $\gamma = -.18$, foreign students, $\gamma = .21$, persons who did not hold an outside job, $\gamma = -.27$, and those who had lower GRE scores, $\gamma = -.29$. As a set, the 9 predictors reduced the unexplained variance in rate of change in role clarity by 27.93%.

Proximal Adaptation Outcomes at End of Transition Period

Hypothesis 12 predicted that the amount of previous transition experience will predict an adaptation outcome, (a) task mastery, (b) role clarity, and (c) social integration, assessed at the end of the transition period over any predictability already provided by rate of increase in the same outcome. As noted earlier, for each of these three proximal adaptation outcomes, exploratory analyses were also performed to assess possible associations between rate of change in the outcome and the outcome assessed at the end

of the transition period. In addition, exploratory analyses were also performed to assess if proactive personality provided unique predictability over rate of change in the prediction of each of the three outcomes assessed at the end of the transition period.

Table 8 summarizes the results of the hierarchical regression analyses performed to test Hypothesis 12 and explore the associations just described. Because of the problem of factor score indeterminacy (McDonald & Mulaik, 1979), individual true slope factor scores were not used in the regression analyses. Instead, to be commensurable with the use of observed scores (i.e., scores on predictor measures and outcome assessed at the end of transition) in the regressions, the observed rate of change was entered in the regressions. This observed rate of change in each outcome was obtained by computing the mean of the three difference scores corresponding to the three adjacent time intervals in the 4-timewave period of study. Separate hierarchical regressions were performed for each of the three proximal adaptation outcomes by regressing the outcome assessed at the end of the transition period (i.e., at Time 4) on its rate of change, the relevant individual predictor (i.e., previous transition experience or proactive personality), and the block of 7 newcomer background variables. Rate of change was entered in Step 1 of the regression, the relevant individual predictor was entered in Step 2, and the block of background variables was entered in Step 3.

As shown in the table, each proximal adaptation outcome assessed at the end of the transition period was equally and strongly predicted by its rate of change with 32.9%, 28.8% and 29.6% variance in task mastery, role clarity, and social integration,

Table 8

Summary of Hierarchical Regression Analyses of Proximal Adaptation Outcome (assessed at end of transition period) on its Rate of Change, Individual Predictor (previous transition experience or proactive personality), and Background Variables (N = 146)

	Task Mastery		Role Clarity		Social Integration	
Step/Variable	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2
1. Rate of Change[a]		.329*		.288*		.296*
2. PrevTran[b]	.002	.331*	.005	.293*	.005	.301*
3. Background Variables[c]	.029	.360*	.056	.349*	.061	.362*
1. Rate of Change[a]		.329*		.288*		.296*
2. ProactPer	.037*	.366*	.061*	.349*	.005	.301*
3. Background Variables[c]	.019	.385*	.046	.395*	.061	.362*

Note. Task mastery, role clarity, and social integration refer to the measurement at the end of the transition period (i.e., at Time 4). Variables abbreviated: PrevTran = previous transition experience measure; ProactPer = Bateman and Crant's (1993) proactive personality measure.

[a] Rate of change in each proximal adaptation outcome refers to the mean of the 3 difference scores corresponding to the 3 adjacent time intervals in the 4-timewave period of study.

[b] This step provided the test for Hypotheses 12a, 12b, and 12c.

[c] This block refers to the set of 7 background variables in the study (i.e., Variables 1-7 presented in Table 1).

* $p < .05$.

respectively, accounted for, $p < .05$ (see Step 1). The positive regression weight associated with rate of change indicated that, for each of the three adaptation outcomes, rate of increase and level at the end of transition period were positively associated. In each of the three outcomes, previous transition experience, entered at Step 2 of the regressions, did not provide significant incremental predictability over that provided by rate of change, with trivial amounts of incremental variance accounted for ranging from 0.2% to 0.5%, $p > .05$. In fact, the zero-order correlations reported in Table 1 show that previous transition experience did not have significant bivariate associations with task mastery ($r = .01$), role clarity ($r = -.11$), and social integration ($r = .03$) assessed at the end of the transition period (i.e., at Time 4), $p > .05$. Hence, Hypothesis 12 was not supported. Table 8 also shows that, for each of the three outcomes assessed at the end of the transition period, the block of 7 background variables provided low incremental predictability over rate of change and previous transition experience with small amounts of incremental variance accounted for, $p > .05$; specifically, 2.9% for task mastery, 5.6% for role clarity, and 6.1% for social integration.

As shown in Table 8, for task mastery and role clarity assessed at the end of the transition period, proactive personality provided significant incremental predictability over that provided by rate of change, although the amounts of incremental variance accounted for were small: 3.7% for task mastery and 6.1% for role clarity. Proactive personality did not provide significant incremental predictability over rate of change for the social integration outcome with an incremental variance of 0.5%. These results are

consistent with the bivariate associations between proactive personality and task mastery, (r = .24, p < .05), role clarity (r = .26, p < .05), and social integration (r = .13, p > .05) assessed at Time 4 as reported in Table 1. As shown in Table 8, for each of the three outcomes assessed at the end of the transition period, the block of 7 background variables provided low incremental predictability over rate of change and proactive personality with small amounts of incremental variance accounted for, p > .05; specifically, 1.9% for task mastery, 4.6% for role clarity, and 6.1% for social integration. These results are consistent with the low bivariate associations between the 7 background variables and the three proximal adaptation outcomes assessed at Time 4 as reported in Table 1 with zero-order correlations ranging from –.18 to .20.

Recall that responses from faculty members were also collected to obtain supervisory ratings of task mastery and role clarity - two proximal adaptation outcomes for which faculty members were likely to be able to provide relevant ratings. The Time 4 means reported in Table 1 show that, for these two proximal adaptation outcomes assessed at the end of the transition period, supervisory ratings were substantially higher than newcomer self-reported ratings with a difference of about 1 standard deviation unit for task mastery and a half standard deviation unit for role clarity. Supervisory ratings and newcomer self-reported ratings were significantly and positively correlated for task mastery, although the effect was not large, r = .29, p < .05. They were uncorrelated for role clarity, r = .02, p > .05.

To examine if supervisory ratings of proximal adaptation outcomes were related to the two individual difference predictors and the set of background variables in similar ways as newcomer self-reported ratings were, hierarchical regression analyses similar to those reported in Table 8 were also performed using supervisory ratings as measures of proximal adaptation outcomes. The results are summarized in Table 9. As shown in the table, supervisory assessment of newcomer task mastery observed at the end of the transition period was significantly and positively predicted by the rate of change in self-reported task mastery although the proportion of variance accounted for (11.1%) was only one-third of the variance accounted for when self-reported task mastery was used as the criterion (32.9%, see Table 8). In contrast to self-reported role clarity (see Table 8), supervisory assessment of newcomer role clarity observed at the end of the transition period was not predicted by the rate of change in self-reported role clarity with a trivial amount of variance accounted for (0.1%, $p > .05$). These regression results are consistent with the finding that supervisory ratings and newcomer self-reported ratings were positively correlated for task mastery but uncorrelated for role clarity. For both task mastery and role clarity (assessed by supervisors), neither previous transition experience nor proactive personality provided any significant incremental predictability over that provided by rate of change (newcomer self-reported ratings), with trivial amounts of incremental variance accounted for ranging from 0.1% to 1.3%, $p > .05$. In fact, the zero-order correlations reported in Table 1 show that both previous transition experience and proactive personality did not have significant bivariate associations with supervisory

Table 9

Summary of Hierarchical Regression Analyses of Supervisory Assessment of Proximal Adaptation Outcome (assessed at end of transition period) on Rate of Change in Outcome (based on newcomer self-reported ratings), Individual Predictor (previous transition experience or proactive personality), and Background Variables (N = 68)

	Task Mastery			Role Clarity		
Step/Variable	β[a]	ΔR^2	R^2	β[a]	ΔR^2	R^2
1. Rate of Change[b]	.33*		.111*	-.04		.001
2. PrevTran	-.03	.001	.112	.08	.006	.007
3. Background Variables		.187	.299		.144	.151
Gender	.07			.01		
Age	-.09			.20		
StudStat	-.05			.30		
GradAssist	.27			-.14		
Outjob	-.03			-.22		
ResearchReq	.26			-.08		
GRE	.01			-.03		

Step/Variable	Task Mastery β[a]	Task Mastery ΔR^2	Task Mastery R^2	Role Clarity β[a]	Role Clarity ΔR^2	Role Clarity R^2
1. Rate of Change[b]	.33*		.111*	-.04		.001
2. ProactPer	-.11	.013	.124	-.04	.001	.002
3. Background Variables		.187	.311		.147	.149
Gender	.08			.03		
Age	-.09			.28		
StudStat	-.03			.25		
GradAssist	.28			-.15		
Outjob	-.02			-.24		
ResearchReq	.26			-.08		
GRE	-.04			-.06		

Note. Task mastery and role clarity refer to the supervisory assessment at the end of the transition period (i.e., at Time 4). Variables abbreviated: PrevTran = previous transition experience measure; ProactPer = Bateman and Crant's (1993) proactive personality measure.

[a] Standardized regression coefficients associated with each step of the regression.

[b] Rate of change in each proximal adaptation outcome refers to the mean of the 3 difference scores corresponding to the 3 adjacent time intervals in the 4-timewave period of study (scores are newcomer self-reported ratings).

* $p < .05$.

assessments of task mastery and role clarity assessed at the end of the transition period (i.e., at Time 4), with trivial correlations ranging from –.09 to .08, $p > .05$. Table 9 also shows that, for both task mastery and role clarity assessed by supervisors at the end of the transition period, the block of 7 background variables provided some incremental predictability over rate of change and the relevant individual difference predictor (i.e., previous transition experience or proactive personality) with moderate amounts of incremental variance accounted for ranging from 14.4% to 18.7%. As indicated by the regression weights, most of the incremental variance in supervisory assessment of newcomer task mastery accounted for by the set of 7 background variables was attributable to graduate assistantship and research requirement variables. Specifically, newcomers who received higher task mastery ratings from supervisors were those who held a graduate assistantship and were enrolled in a program in which a research project is part of the degree requirement. This is consistent with the positive and substantial zero-order correlations between supervisory ratings of task mastery and graduate assistantship ($r = .40$) and research requirement ($r = .36$) reported in Table 1. In contrast, different background variables were important in predicting supervisory assessment of newcomer role clarity. As indicated by the regression weights, newcomers who received higher role clarity ratings from supervisors were likely to be older, did not hold an outside job, and they were likely to be foreign students. This is consistent with the pattern of zero-order correlations reported in Table 1 (see correlations between Variable 59 and Variables 1-9).

To summarize the findings from the exploratory analyses on the three proximal adaptation outcomes (task mastery, role clarity, social integration), the general pattern of results showed that, for each outcome, newcomers who, over the transition period, increased their self-reported levels of adaptation at a higher rate also reported higher adaptation levels at the end of the transition period. For task mastery, the positive relationship between rate of change and level at the end of transition remained when the latter was measured using supervisory ratings although the effect was reduced. However, the increase in self-reported levels of role clarity was not associated with level at the end of transition when the latter was measured using supervisory ratings. This, together with the lack of correlation between supervisory ratings and newcomer self-reported ratings on role clarity assessed at the end of transition, suggest a mismatch between the extent to which supervisors perceive newcomers are clear about what is expected of them in their work and have useful information about how their performance will be evaluated (i.e., role clarity) and the extent of role clarity perceived by newcomers themselves.

Newcomers who scored high on proactive personality reported higher levels of task mastery and role clarity at the end of the transition period but they did not differ significantly from those who scored low on proactive personality on self-reported levels of social integration. The 7 background variables were generally not predictive of the three proximal adaptation outcomes when the outcomes were self-reported by newcomers. On the other hand, as described above, different background variables were important in predicting supervisory assessments of newcomer task mastery and role

clarity providing some discriminant validity evidence in supervisory perceptions on these the two adaptation outcomes.

Distal Adaptation Outcomes at End of Transition Period

Recall that data on both supervisory ratings and self-reported ratings on four newcomer distal adaptation outcomes (job performance, job satisfaction, organizational commitment, professional commitment) were also collected. The Time 4 means reported in Table 1 show that, for job performance assessed at the end of the transition period, there was no significant mean difference between supervisory ratings and newcomer self-reported ratings with a standardized mean difference that is practically zero, $\underline{d} = -.01$, indicating no evidence of inflated self-ratings on the part of the newcomers. For the other three distal adaptation outcomes assessed at the end of the transition period, supervisory ratings were significantly and moderately higher than newcomer self-reported ratings with a difference of about half a standard deviation unit for job satisfaction and organizational commitment and a quarter of a standard deviation unit for professional commitment, indicating that supervisors were more favorable than newcomers themselves when rating these three attitudinal outcomes. Supervisory ratings and newcomer self-reported ratings were significantly and positively correlated to the same extent for all four distal adaptation outcomes although the effects were relatively small with correlations ranging from .25 to .29, $\underline{p} < .05$.

Exploratory hierarchical regression analyses were performed to examine possible associations between distal adaptation outcomes assessed at the end of the transition

period and background variables, proactive personality, previous transition experience, proactivity variables, and proximal adaptation outcomes. To examine if supervisory ratings of distal adaptation outcomes were related to the other variables in similar ways as were newcomer self-reported ratings, the same hierarchical regression analyses were performed separately for supervisory ratings and newcomer self-reported ratings on each of the four distal adaptation outcomes. With respect to proactivity, the interest in these exploratory regression analyses was in the overall level on each proactivity for the entire transition period. To obtain an overall level of proactivity for each proactivity variable, the mean of the newcomer responses on the measures across the four time points was computed for each proactivity variable.

As shown in Table 10, two sets of hierarchical regression analyses were performed. For both sets of analyses, the 7 background variables were entered as a block in Step 1 of the hierarchical regression and both proactive personality and previous transition experience were entered as a block in Step 2. The purpose of these two steps was to examine possible associations between each distal adaptation outcome and the background variables and the two individual predictors. In the first set of regression analyses (upper half of Table 10), the three proactivity variables were entered as a block in Step 3 and the three proximal adaptation outcomes (assessed at the end of the transition period) were entered as a block in Step 4. The purpose of Step 3 was to examine if proactivity provided incremental predictability over the background variables and individual predictors in the prediction of each distal adaptation outcome. The purpose of

Table 10

Summary of Hierarchical Regression Analyses of Newcomer Self-Reported Ratings and Supervisory Ratings of Distal Adaptation Outcomes (assessed at end of transition period) on Background Variables, Individual Predictors (Proactive Personality and Previous Transition Experience), Proactivity Variables, and Proximal Adaptation Outcomes (146 newcomers; 68 supervisors)

	Job Performance				Job Satisfaction				Organizational Commitment				Professional Commitment			
	Self-Reported		Supervisory		Self-Reported		Supervisory		Self-Reported		Supervisory		Self-Reported		Supervisory	
Step/Variable	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2
First Set of Regressions																
1. Background Variables[a]		.038		.059		.066		.036		.045		.083		.079		.174
2. Individual Predictors[b]	.013	.051	.002	.061	.031	.097	.013	.049	.018	.063	.001	.084	.086*	.165	.024	.198
3. Proactivity[c]	.073	.124	.029	.090	.155*	.252*	.038	.087	.164*	.227*	.092	.176	.122*	.287*	.065	.263
4. Proximal Adaptation[d]	.099*	.223	.096 (.236*)	.186 (.326)	.189*	.441*	.094 (.297*)	.181 (.384)	.105*	.332*	.020 (.105)	.196 (.281)	.175*	.462*	.040 (.107)	.303 (.370)

	Job Performance				Job Satisfaction				Organizational Commitment				Professional Commitment			
	Self-Reported		Supervisory		Self-Reported		Supervisory		Self-Reported		Supervisory		Self-Reported		Supervisory	
Step/Variable	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2
Second Set of Regressions																
1. Background Variables[a]		.038		.059		.066		.036		.045		.083		.079		.174
2. Individual Predictors[b]	.013	.051	.002	.061	.031	.097	.013	.049	.018	.063	.001	.084	.086*	.165	.024	.198
3. Proximal Adaptation[d]	.137*	.188	.113 (.247*)	.174 (.308*)	.283*	.380*	.103 (.310*)	.152 (.359)	.241*	.304*	.064 (.104)	.148 (.188)	.290*	.455*	.084 (.102)	.282 (.300)
4. Proactivity[c]	.035	.223	.012 (.019)	.186 (.327)	.061*	.441*	.030 (.025)	.182 (.384)	.028	.332*	.048 (.094)	.196 (.282)	.008	.463*	.020 (.070)	.302 (.370)

Note. Job performance, job satisfaction, organizational commitment, and professional commitment refer to the assessment at the end of the transition period (i.e., at Time 4). Separate regressions were performed for newcomer self-reported ratings (column labeled "Self-Reported") and supervisory ratings (column labeled "Supervisory") on each of these 4 distal adaptation outcomes. Values in parentheses refer to incremental R squares or R squares for regression equations when supervisory ratings were used as measures of proximal adaptation outcomes.

[a] This block refers to the set of 7 background variables in the study (i.e., Variables 1-7 presented in Table 1).

[b] This block refers to Bateman and Crant's (1993) proactive personality measure and the previous transition experience measure.

[c] This block refers to the 3 self-reported newcomer proactivity variables (i.e., technical information seeking from coworkers, referent information seeking from supervisors, and relationship building with coworkers). Because the interest was in the overall level of proactivity for each proactivity variable, the

mean of the respondent responses on the measures across the 3 time points were computed for each proactivity variable and these means were used in this block for the regression.

mean of the newcomer responses on the measures across the 4 time points were computed for each proactivity variable and these means were used in this block for the regression.

[d] This block refers to the 3 proximal adaptation outcomes (i.e., task mastery, role clarity, and social integration) self-reported by newcomers at the end of the transition period (i.e., at Time 4). But note that for values in parentheses, this block refers to the 3 proximal adaptation outcomes as rated by supervisors at the end of the transition period.

* $p < .05$.

Step 4 was to examine if proximal adaptation outcomes provided incremental predictability over the variables entered in the three preceding steps. The second set of regression analyses (lower half of Table 10) were performed to examine if proximal adaptation outcomes partially mediated the relationship between proactivity and each distal adaptation outcome. These analyses differ from the first set of regressions in that the order of entry for the block of proactivity variables and the block of proximal adaptation outcome variables was reversed. The comparison of the R^2 changes associated with Steps 3 and 4 between the first and second set of regressions allowed the mediation relationship to be examined. Finally, recall that results reported earlier have shown that supervisory ratings and newcomer self-reported ratings on the proximal adaptation outcomes were not highly correlated. Therefore, to examine newcomer adaptation outcomes from the supervisor's perspective, the regressions for supervisory assessment of distal adaptation outcomes were repeated using supervisory ratings instead of newcomer self-reported ratings for the block of proximal adaptation outcomes.

As shown in Step 1 of the regressions reported in Table 10, job performance, job satisfaction, and organizational commitment, as assessed by either supervisors or newcomers themselves, were only weakly related with the set of 7 background variables with relatively small amounts of variance accounted for that ranged from 3.6% to 8.3%. A substantial amount of variance in supervisory ratings of professional commitment, however, was accounted for by the background variables (17.4%) and the amount was more than twice that accounted for when professional commitment was self-reported by

newcomers (7.9%). Inspection of the regression weights (not shown in Table 10) indicated that most of the variance in supervisory ratings of professional commitment accounted for by the set of background variables were attributable to GRE scores ($\beta = -.30$), research project requirement ($\beta = .23$), and graduate assistantship ($\beta = .22$). Specifically, newcomers who were rated by their supervisors as more committed to their profession were those who had lower GRE scores, held a graduate assistantship, and were enrolled in a program in which a research project was part of their degree requirement.

Step 2 of the regressions showed that proactive personality and previous transition experience did not provide incremental predictability over the set of background variables for each distal adaptation outcome (with trivial amounts of incremental variance ranging from 0.1% to 3.1%) with the exception of professional commitment self-reported by newcomers (8.6%). Inspection of the regression weights associated with Step 2 (not shown in Table 10) indicated that most of the incremental variance in self-reported professional commitment was attributable to proactive personality ($\beta = .32$) with newcomers who scored high on proactive personality reporting higher levels of professional commitment.

The block of proactivity variables, entered in Step 3 in the first set of regression analyses, provided moderately high incremental predictability over the background variables and individual predictors in each of the four distal adaptation outcomes self-reported by newcomers. The incremental variance provided by proactivity for each of the three attitudinal distal adaptation outcomes (15.5% for job satisfaction; 16.4% for

organizational commitment; 12.2% for professional commitment) were about twice that for job performance (7.3%). Inspection of the regression weights associated with Step 3 (not shown in Table 10) indicated that in each of the three attitudinal distal adaptation outcomes, most of the incremental variance was attributable to the proactivity of relationship building (β = .45 for job satisfaction; β = .47 for organization commitment; β = .41 for professional commitment) so that newcomers who had high overall levels of relationship building during the transition period were, at the end of the transition, more satisfied with their job and more committed to the organization and their profession. However, incremental predictability provided by the block of proactivity variables were relatively low when ratings on the distal adaptation outcomes were provided by supervisors with incremental variance ranging from 2.9% to 9.2%.

The first set of regression analyses also showed that proximal adaptation outcomes self-reported by newcomers, entered in Step 4, provided moderately high incremental predictability even after controlling for background variables, individual predictors, and proactivity variables (9.9% for job performance; 18.9% for job satisfaction; 10.5% for organizational commitment; 17.5% for professional commitment). Inspection of the regression weights associated with Step 4 (not shown in Table 10) indicated that proximal adaptation outcomes differed in their importance in the prediction of different distal adaptation outcomes. Specifically, most of the incremental variance in job performance accounted for by the block of proximal adaptation outcomes was attributable to task mastery (β = .32); most of the incremental variance in job satisfaction

was attributable equally to task mastery (β = .29) and role clarity (β = .27); and most of the incremental variance in organizational commitment was attributable equally to role clarity (β = .25) and social integration (β = .22); and most of the incremental invariance in professional commitment was attributable to social integration (β = .38) and to a lesser extent to role clarity (β = .19).

For newcomer self-reported ratings of distal adaptation outcomes, a comparison of the R^2 changes associated with Steps 3 and 4 between the first and second set of regressions showed that controlling for proximal adaptation outcomes (i.e., entering them in Step 3) eliminated most of the incremental predictability provided by proactivity variables. Specifically, the incremental variance provided by proactivity variables was reduced from 7.3% to 3.5% for job performance, 15.5% to 6.1% for job satisfaction, 16.4% to 2.8% for organizational commitment, and 12.2% to 0.8% for professional commitment. A much less pronounced effect was true of the converse. That is, substantial incremental predictability provided by proximal adaptation outcomes remained even after controlling for proactivity variables (i.e., entering proactivity variables in Step 3). Specifically, the reduction was from 13.7% to 9.9% for job performance, 28.3% to 18.9% for job satisfaction, 24.1% to 10.5% for organizational commitment, and 29.0% to 17.5% for professional commitment. Hence, there is some evidence suggesting that the associations between proactivity variables and distal adaptation outcomes were partially mediated by proximal adaptation outcomes. However, there were no evidence of similar mediation relationships when the distal

adaptation outcomes were assessed by supervisors. As shown in Table 10, for supervisory ratings of distal adaptation outcomes, the incremental predictability for the block of proactivity variables and the block of proximal adaptation outcomes showed little reduction when one block was controlled to assess the remaining incremental variance accounted for by the other. This remained true when supervisory ratings instead of newcomer self-reported ratings were used as measures of proximal adaptation outcomes (see values in parentheses in Table 10). Supervisory ratings of proximal adaptation outcomes, however, were moderately to highly predictive of supervisory ratings of distal adaptation outcomes even when the predictability provided by background variables, individual predictors, and proactivity variables were already taken into account.

To summarize the findings on distal adaptation outcomes, the general pattern of results showed that there was no evidence of self-inflated ratings when newcomers reported on their distal adaptation outcomes. Supervisors consistently provided higher ratings than newcomers themselves with respect to job satisfaction, organizational commitment, and professional commitment and no mean difference in ratings was found for job performance. However, correlations between supervisory ratings and newcomer self-reported ratings on all four distal adaptation outcomes, although significant, were low. Exploratory hierarchical regression analyses suggested that background variables and the two individual predictors examined in the present study were generally only weakly associated with these distal adaptation outcomes although some background

variables were predictive of supervisory ratings of professional commitment and proactive personality was predictive of newcomer self-reported professional commitment. Proactivity variables were predictive of self-reported distal adaptation outcomes; but, for the three attitudinal distal adaptation outcomes, the proactivity of relationship building was responsible for most of the proactivity-distal outcome predictive relationship. The set of proximal adaptation outcomes were predictive of each distal adaptation outcome but the predictive importance of each proximal adaptation outcome was dependent on the specific distal adaptation outcome being predicted. These differential relationships provided some evidence of discriminant validity for the four distal adaptation outcomes. There was some evidence that the self-reported proximal adaptation outcomes partially mediated the relationships between proactivity variables and distal adaptation outcomes. However, it is likely that common method variance due to single source bias may explain some portion of these relationships because there was no evidence of similar mediation relationships when distal adaptation outcomes were assessed by supervisors.

Summary of Hypotheses and Results

Table 11 presents a summary of the hypotheses specified in the present study and the associated results. As shown in the table, hypotheses about the basic nature of the three newcomer proactivities (i.e., technical information seeking, referent information seeking, relationship building) focusing on the intraindividual changes over time were supported (H1, H2, H3). Contrary to prediction, proactive personality was not related to individual differences in each of the three proactivities both at initial organizational entry

Table 11

Summary of Hypotheses and Associated Results

	Statement of Hypothesis	Results
H1	At initial organizational entry, there will be an Information Type X Information Source interaction effect on the extent of information seeking by newcomers. Specifically, newcomers will ask coworkers for technical information more frequently than they will ask supervisors, but they will ask supervisors for referent information more frequently than they will ask coworkers.	Part-Supp[a]
H2a	Over time, the extent to which newcomers ask coworkers for technical information will decrease.	Supp
H2b	Over time, the extent to which newcomers ask supervisors for technical information will remain constant.	Supp
H2c	Over time, the extent to which newcomers ask coworkers for referent information will remain constant.	Supp
H2d	Over time, the extent to which newcomers ask supervisors for referent information will increase.	Supp
H3	Over time, the extent to which newcomers engage in relationship building with coworkers will decrease.	Supp
H4a	Proactive personality will be positively correlated with the extent of technical information seeking from coworkers at the point of organizational entry.	Not-Supp
H4b	Proactive personality will be positively correlated with the extent of referent information seeking from supervisors at the point of organizational entry.	Not-Supp

	Statement of Hypothesis	Results
H4c	Proactive personality will be positively correlated with the rate of decrease in technical information seeking from coworkers.	Not-Supp
H4d	The relationship between proactive personality and the rate of decrease in technical information seeking from coworkers is mediated by the extent of technical information seeking at the point of organizational entry.	NT
H4e	Proactive personality will be positively correlated with the extent of relationship building with coworkers at the point of organizational entry.	Not-Supp
H4f	Proactive personality will be negatively correlated with the rate of decrease in relationship building with coworkers.	Not-Supp
H5a	The amount of previous transition experience will be positively correlated with the extent of technical information seeking from coworkers at the point of organizational entry.	Part-Supp[b]
H5b	The amount of previous transition experience will be positively correlated with the extent of referent information seeking from supervisors at the point of organizational entry.	Part-Supp[b]
H5c	The amount of previous transition experience will be positively correlated with the extent of relationship building with coworkers at the point of organizational entry.	Part-Supp[b]

	Statement of Hypothesis	Results
H5d	The amount of previous transition experience will be positively correlated with the rate of decrease in technical information seeking from coworkers.	Not-Supp
H5e	The relationship between the amount of previous transition experience and the rate of decrease in technical information seeking from coworkers is mediated by the extent of technical information seeking at the point of organizational entry.	NT
H6a	Over time, task mastery will increase.	Supp
H6b	Over time, role clarity will increase.	Supp
H6c	Over time, social integration will increase.	Supp
H7a	The extent of technical information seeking from coworkers at the point of entry will be positively correlated with the rate of increase in task mastery.	NT
H7b	The extent of referent information seeking from supervisors at the point of entry will be positively correlated with the rate of increase in role clarity.	Not-Supp
H7c	The extent of relationship building with coworkers at the point of entry will be positively correlated with the rate of increase in social integration.	NT

	Statement of Hypothesis	Results
H8a	The rate of increase in task mastery will be positively correlated with the rate of decrease in technical information seeking from coworkers.	NT
H8b	The rate of increase in role clarity will be negatively correlated with the rate of increase in referent information seeking from supervisors.	Not-Supp
H8c	The rate of increase in social integration will be positively correlated with the rate of decrease in relationship building with coworkers.	NT
H9a	Proactive personality will be positively correlated with the rate of increase in task mastery.	NT
H9b	The relationship between proactive personality and rate of increase in task mastery is mediated by the extent of technical information seeking from coworkers at the point of organizational entry.	NT
H9c	The amount of previous transition experience will be positively correlated with the rate of increase in task mastery.	NT
H9d	The relationship between previous transition experience and rate of increase in task mastery is mediated by the extent of technical information seeking from coworkers at the point of organizational entry.	NT

	Statement of Hypothesis	Results
H10a	Proactive personality will be positively correlated with the rate of increase in role clarity.	Not-Supp
H10b	The relationship between proactive personality and rate of increase in role clarity is mediated by the extent of referent information seeking from supervisors at the point of organizational entry.	NT
H10c	The amount of previous transition experience will be positively correlated with the rate of increase in role clarity.	Not-Supp
H10d	The relationship between previous transition experience and rate of increase in role clarity is mediated by the extent of referent information seeking from supervisors at the point of organizational entry.	NT
H11a	Proactive personality will be positively correlated with the rate of increase in social integration.	NT
H11b	The relationship between proactive personality and rate of increase in social integration is mediated by the extent of relationship building with coworkers at the point of organizational entry.	NT
H11c	The amount of previous transition experience will be positively correlated with the rate of increase in social integration.	NT
H11d	The relationship between previous transition experience and rate of increase in social integration is mediated by the extent of relationship building with coworkers at the point of organizational entry.	NT

	Statement of Hypothesis	Results
H12a	The amount of previous transition experience will predict task mastery assessed at the end of the transition period over any predictability already provided by rate of increase in task mastery.	Not-Supp
H12b	The amount of previous transition experience will predict role clarity assessed at the end of the transition period over any predictability already provided by rate of increase in role clarity.	Not-Supp
H12c	The amount of previous transition experience will predict social integration, assessed at the end of the transition period over any predictability already provided by rate of increase in social integration.	Not-Supp

Note. Results abbreviated: Supp = hypothesis was supported; Part-Supp = hypothesis was partially supported; Not-Supp = hypothesis was not supported; NT = hypothesis was not tested because a prerequisite condition was not fulfilled (e.g., It was not meaningful to test an hypothesized predictor-criterion relationship because the prerequisite condition of significant individual differences in a criterion was not fulfilled; it was not meaningful to test a hypothesized mediation relationship between a predictor and a criterion because the prerequisite condition of a significant predictor-criterion relationship was not fulfilled).

a Information type and information source interacted to affect the extent of information seeking. As predicted in H1, when information was of the technical type, newcomers sought the information from coworkers more frequently than from supervisors. However, contrary to what was predicted in H1, no significant between-source difference in the extent of referent information seeking was obtained.

b The structural effects from previous transition experience to the relevant intercept factor (i.e., level of the relevant proactivity at initial organizational entry) were positive (as predicted) and small to moderate although not statistically significant, H5a: $\gamma = .27$; H5b: $\gamma = .22$; H5c: $\gamma = .20$).

and in terms of rate of change over the transition period (H4). On the other hand, there was some evidence supporting the predictions that individual differences in the amount of previous transition experience would be positively related to the extent of newcomer proactivities (H5). Hypotheses about the nature of the intraindividual changes in the three proximal adaptation outcomes (i.e., task mastery, role clarity, social integration) over time were also supported (H6). However, the specific relationships regarding proactive personality, previous transition experience, proactivities, and proximal adaptation outcomes as explicated in H7 to H12 were either not supported or cannot be meaningfully tested because a prerequisite condition was not fulfilled. For example, it was not meaningful to test an hypothesized mediation relationship between a predictor and a criterion because the prerequisite condition of a significant predictor-criterion relationship was not fulfilled. Finally, as summarized above, results of exploratory analyses revealed a number of interesting relationships among newcomer characteristics, proactivities, and proximal and distal adaptation outcomes that were not hypothesized. These relationships, together with the hypothesized relationships presented in Table 11, will be discussed next.

Chapter 4

DISCUSSION

The purpose of this study was to extend prior research on newcomer adaptation by explicitly modeling the nature of the intraindividual changes in proactivities and adaptation outcomes that occur over the transition period and interindividual differences in these changes. The latent growth results obtained from the longitudinal data collected in present period of study are consistent with a dynamic perspective of the newcomer individual adaptation process in that changes in proactivities and adaptation outcomes are systematically related to time. The basic nature of the change trajectories associated with the newcomer proactivities examined (i.e., technical information seeking, referent information seeking, relationship building) are supported. Contrary to prediction, proactive personality is not related to individual differences in each of the three proactivities both at initial organizational entry and in terms of rate of change over the transition period. It is likely that there is a host of situational constraints not examined in the present study that may prevent individual differences in proctive personality from translating into individual differences in proactive behaviors. On the other hand, there is some evidence supporting the predictions that individual differences in the amount of previous transition experience are positively related to the extent of newcomer proactivities. Hypotheses about the nature of the intraindividual changes in the three proximal adaptation outcomes (i.e., task mastery, role clarity, social integration) over time are supported. However, as mentioned earlier, the specific predictions regarding

proactive personality, previous transition experience, proactivities, and proximal adaptation outcomes are either not supported or cannot be meaningfully tested because a prerequisite condition is not fulfilled. Results of exploratory analyses revealed a number of interesting unhypothesized relationships among newcomer characteristics, proactivities, and proximal and distal adaptation outcomes.

Corresponding to the two primary purposes of the study (i.e., modeling nature of intraindividual changes and interindividual differences in these changes), two features of the results reported here are most striking. First, the results indicate that the specific nature of the intraindividual change (i.e., the functional form and direction of the change trajectory) is dependent on the focal variable in question. Second, systematic individual differences in proactivity and proximal adaptation outcomes exist at initial organizational entry and, for most focal variables, in terms of the rate of change over the transition period as well. These individual differences are systematic in that they are predictable from one or more newcomer person characteristics (i.e., proactive personality, previous transition experiences, and other background variables). Differential patterns of associations between predictors and individual differences in growth parameters across different proactivity and adaptation variables also provide additional evidence that the nature of intraindividual change occurring in the newcomer adaptation process is dependent on the focal variable involved. The following sections summarize the substantive inferences drawn from the present findings and the implications and

contributions of this study to research on newcomer adaptation. Limitations of the study and future research challenges are also discussed.

Intraindividual Changes in Proactivities and Adaptation Outcomes

Information seeking is one of the most studied proactivity in research on newcomer adaptation probably because it is thought to be a common and active attempt by newcomers to "sensemake" (Louis, 1980) and facilitate their own adjustment in a period of transition (Reichers, 1987). Consistent with previous findings (e.g., Burke & Bolf, 1986; Comer, 1991; Louis et al., 1983), the present study found that, at initial organizational entry, newcomers seek technical information from coworkers more frequently than from supervisors. However, Morrison's (1993b) finding that newcomers seek referent information from supervisors more frequently than from coworkers was not replicated. No between-sources difference in frequency of referent information seeking at initial organizational entry was found in the present study. As described in the results, the pattern of results cannot be attributed to differential reliabilities because reliabilities of the current measures were equally high. As noted in the introduction, the essence of the newcomer individual adaptation process is the nature of intraindividual changes that presumably exist over time during the transition period. Hence, it is important to examine intraindividual changes in information seeking over time as opposed to focusing solely on the extent of information seeking at initial organizational entry which gives only one initial snapshot of a change process. Morrison (1993b) found that overall frequency of information seeking was quite stable over time but also provided some

evidence of changes that were dependent on the specific type of information sought. Specifically, she found that frequency of technical information seeking tends to decrease whereas referent information seeking tends to increase over time. The present study extends Morrison's study by examining the information seeking trajectory taking into account both information type and information source. As predicted, the study found an information type X information source interaction effect on the direction of the information seeking trajectory. Specifically, the extent to which newcomers seek technical information decreases over time when the information source is coworkers but remains constant when the source is the supervisor. On the other hand, the extent to which newcomers seek referent information increases over time when the information source is the supervisor but remains constant when the source is coworkers. Thus, a richer and more accurate picture is obtained when information type is explicitly linked to information source in the examination of intraindividual changes in information seeking over time.

The finding that technical information seeking from coworkers decreases over time is consistent with Smith's (1993) finding of a negative relationship between tenure and technical information seeking. Morrison (1993b) argued that technical information seeking decreases over time because job or task mastery increases. Consistent with this argument, the univariate latent growth analysis shows a positive linear trajectory of task mastery indicating that over time newcomers increase their perceived levels of task mastery. In addition, the multivariate latent growth analysis shows that, at initial

organizational entry, newcomers who perceive that they are high in task mastery are seeking technical information from coworkers to a lesser extent. However, these results do not constitute strong evidence for the argument that technical information seeking decreases over time as a result of increase in task mastery. Note that the argument assumes a causal mechanism operative at the individual level of analysis. If this causal relationship holds, then we would expect newcomers in the present study who show higher rates of increase in perceived task mastery to show higher rates of decrease in technical information seeking. As explained in the description of results, it was not meaningful to test this relationship in the study because no individual differences in rate of change were found for task mastery although individual differences were found for technical information seeking from coworkers. To test this relationship, future studies should, in the event that significant individual differences are found for rate of change in both technical information seeking and task mastery, assess the association between the rates of change in the two variables. What the present study does show is that there are systematic individual differences in rate of change in technical information seeking from coworkers that are not attributable to individual differences in rate of change in task mastery. Although the hypothesized associations between rate of change in technical information seeking and proactive personality and previous transition experience are not supported, individual differences in rate of change in technical information seeking are systematically associated with several newcomer background characteristics. For example, female newcomers decrease their technical information seeking from coworkers

at a rate higher that that of male newcomers and older newcomers decreased at a rate higher than that of younger newcomers. These findings open up new avenues for research into influences on individual differences in intraindividual change in technical information seeking that are independent of individual differences in task mastery. To increase our understanding of these influences, mediating mechanisms between newcomer background characteristics or individual difference variables and rate of change in technical information seeking will have to be postulated, measured, and tested. For example, Ashford (1986) has argued that the social costs of information increase over time because, with increased tenure on the job, seeking may undermine their standing as confident and self-assured veterans. On the basis of some relevant theory, researchers may hypothesize that newcomer perception of social costs is associated with newcomer characteristics such as gender and age. Measures of social cost perceptions can then be obtained and latent growth analyses can be used to test the hypothesized mediations between newcomer characteristics and rate of change in technical information seeking (for tests of mediations in latent growth analyses, see Muthen & Curran, 1997).

Katz (1980) suggested that with increasing time in the organization newcomers become less concerned with fitting in and more concerned with performance evaluation. The present findings are consistent with this argument. The latent growth analyses show that over time newcomers increase their referent information (i.e., information about what is expected of the newcomer and how he or she is evaluated) seeking from supervisors and decrease their relationship building with coworkers. Relationship building with

coworkers is directly relevant to Katz's notion of fitting in socially. To my knowledge, this is the first study to examine intraindividual change in the extent of relationship building over time. Note that unlike Morrison's (1993b) argument concerning the relationship between technical information seeking and task mastery, Katz's argument does not assume a causal mechanism between referent information seeking and relationship building. That is, while it is predicted that over time newcomers as a group increase the level of referent information seeking from supervisors and decrease the level of relationship building with coworkers, it is not predicted that newcomers who are increasing their referent information seeking at higher rates are also decreasing their relationship building at higher rates. A post hoc multivariate latent growth analysis combining referent information seeking from supervisors and relationship building with coworkers shows that the cross-domain slope-slope correlation is not significantly different from zero, $r = -.13$, $p > .05$. Further evidence of independence between the two proactivities is provided by the study's finding that the growth factors of the two proactivities have different patterns with the same predictor variables.

As predicted, each of the three proximal adaptation outcomes examined in this study (i.e., task mastery, role clarity, social integration) shows a positive linear trajectory. This is consistent with the notion that, over time, task mastery increases as newcomers learn how to perform their job, role clarity increases as newcomers learn what their supervisors expect of them in their job, and social integration increases as newcomers

develop personal relationships with their coworkers and become more integrated into their work group.

The univariate latent growth analyses also show that there are individual differences in rate of increase in role clarity but not in task mastery or social integration. Because no individual differences in rate of increase was found for task mastery and social integration, it was not meaningful to assess if they are predictable from the proactivities of information seeking and relationship building. Contrary to prediction, individual differences in rate of change in role clarity are not predictable from individual differences in the initial status or rate of change in referent information seeking from supervisors. Exploratory analyses also indicate that role clarity at initial organizational entry is not associated with the initial status or rate of change in referent information seeking. In addition, initial status and rate of increase are not associated for role clarity ($r = .11$, $p > .05$) but negatively and substantially correlated for referent information seeking from supervisors ($r = -.50$, $p < .05$). Further strong evidence of the independence between intraindividual change in referent information seeking and intraindividual change in role clarity is provided by the differential patterns of predictor-growth factor associations across the two variables. For example, at initial organizational entry, there is a substantial positive association between proactive personality and role clarity ($r = .44$, $p < .05$) but proactive personality and referent information seeking from supervisors are not associated ($r = .13$, $p > .05$). But most noteworthy is the finding of differential patterns of predictor-rate of change associations. For example, over time, newcomers with less

previous transition experience increase their referent information seeking from supervisors at a much higher rate than those with more previous transition experience ($r = -.78$, $p < .05$) but no association exists between previous transition experience and rate of increase in role clarity. One interpretation consistent with this finding and the lack of association between referent information seeking and role clarity is that newcomers' concern with what is expected of them and how they are evaluated is distinct from their knowledge of what is expected of them and how they are evaluated. It is the concern of expectation and evaluation that constitutes the motivation to seek referent information but it is the knowledge of expectation and evaluation that constitutes perceptions of role clarity. There is no necessary causal connection between concern and knowledge, in either direction, which explains the lack of association between referent information seeking and role clarity whether construed in terms of initial status or rate of change. According to this distinction, newcomers with less previous transition experience are more concerned with how they are evaluated; hence, unlike those with more previous transition experience, they continually seek referent information from supervisors as new work situations are encountered during the transition period (i.e., they have higher rates of increase). But because referent information seeking reflects more the concern rather than the lack of knowledge of expectation and evaluation, the rate of increase in referent information seeking is not associated with the rate of increase in role clarity which explains the lack of association between previous transition experience and rate of increase in role clarity. It is intuitively appealing to associate newcomer referent

information seeking from supervisors and newcomer perceptions of role clarity in a reciprocal or unidirectional (either one of the two directions) proactivity-adaptation causal relationship. However, prior research has not paid sufficient attention to the time-sensitive aspects of the two variables and examined the nature of the intraindividual changes associated with these variables. Contrary to intuition and what was hypothesized in the present study, the above results provide strong evidence that intraindividual change in referent information seeking from supervisors and intraindividual change in role clarity can proceed independently. Future efforts to replicate the present latent growth results across different samples and jobs should be undertaken.

The present results also show the importance of distinguishing the level on a proximal adaptation outcome as assessed at the end of the transition period from the rate of change in the outcome over the transition period. Different results including the presence of individual differences and patterns of associations with the same variables are obtained depending on whether the end point or rate of change in the proximal adaptation outcome is referred to. In the present study, while individual differences in rate of change are present in role clarity but not task mastery and social integration, individual differences at the end of the transition period exist for each of the three proximal adaptation outcomes. Each outcome self-reported at the end of the transition period is equally and strongly predicted by its rate of change in a positive direction. Recall that proactive personality is not predictive of rate of increase in role clarity and there are no individual differences in rate of increase in task mastery and social integration to be

associated with proactive personality. In contrast, proactive personality positively predicts task mastery and role clarity at the end of transition even after controlling for rate of change in the relevant variable. When assessing adaptation outcomes, it is also important to distinguish between self-reports provided by newcomers and independent ratings provided by supervisors. For example, the present results show that supervisory ratings and newcomer self-reported ratings on role clarity assessed at the end of transition are not correlated. Also, the positive association between rate of increase in self-reported levels of role clarity and the level of role clarity at the end of transition disappears when the latter is measured using supervisory ratings. These results suggest a mismatch of perceptions between supervisors and newcomers in terms of the extent to which newcomers are clear about what is expected of them in their work and have useful information about how their performance will be evaluated. The results also show that while the set of background variables examined in the study are generally not predictive of the three proximal adaptation outcomes when the outcomes are self-reported by newcomers, different background variables are important in predicting supervisory assessments of newcomer task mastery and role clarity. These results highlight the importance of specifying the rating source when making assertions about proximal adaptation outcomes and obtaining assessments from multiple sources and evaluating convergent validity prior to drawing general inferences about adaptation levels.

A contribution of the present study is that proximal and distal adaptation outcomes are distinguished and both are examined with proactivity variables in a single

study. Previous studies have examined the associations between proactivity variables (e.g., information seeking, relationship building) and proximal adaptation outcomes (e.g., task mastery, social integration) or between proactivity variables and distal adaptation outcomes (e.g., job satisfaction, organizational commitment) but I am not aware of any that has directly examined the relationships among the three sets of variables. The present results indicate that relationship building with coworkers is the most important proactivity (relative to the information seeking proactivities) in the prediction of the attitudinal distal adaptation outcomes, namely, job satisfaction, organizational commitment, and professional commitment. Proximal adaptation outcomes are generally predictive of distal adaptation outcomes but the relative importance of the former varies according to the specific distal adaptation outcome in question. There is also some evidence that proximal adaptation outcomes partially mediate the relationships between proactivities and distal adaptation outcomes although some portion of these relationships may be attributable to common method variance due to single source bias because there is no similar evidence of mediation when the distal adaptation outcomes are assessed by supervisors. It is also noteworthy that there is no evidence of self-inflated ratings when newcomers report their distal adaptation outcomes; in fact, supervisors consistently provide higher ratings than newcomers themselves with respect to job satisfaction, organizational commitment, and professional commitment.

To summarize, the above discussion shows the importance of going beyond the traditional aggregate-level analysis of longitudinal data (i.e., in terms of mean

differences) on newcomer proactivity or adaptation outcome to conceptualize change in each of these focal variables at both the group and individual levels and describe change in terms of intraindividual change over time and interindividual differences in these changes. The latent growth modeling approach provides a unified and flexible framework for examining changes as such and the present findings show how the framework can be used to directly address important questions about the newcomer adaptation process in ways that have not been previously examined.

Practical Implications of the Present Study

From a practical perspective, the present study provides a framework for organizations to increase understanding of the complexity of the newcomer adaptation process which in turn should help identify organizational practices and interventions that would facilitate newcomer adaptation. Organizations should be educated on the time-sensitive and multifaceted nature of newcomer proactivities and adaptation outcomes. Instead of asking undifferentiated questions on whether a newcomer is proactive or adapted, organizations should be sensitized to recognize the specific proactivity or adaptation outcome in question and the associated intraindividual changes that occur over the transition period. The adaptation of newcomers could be monitored during the transition process and compared to the relevant basic change trajectory that best describes most newcomers. For example, with respect to information of the technical type, the present results indicate that while newcomers tend to maintain a relatively constant level of information seeking from supervisors, they tend to decrease their information seeking

from coworkers over the transition period. Newcomers who continue to maintain a constant high level of information seeking from coworkers may be experiencing difficulties in performing their job tasks. With respect to information of the referent type, the present results indicate that while newcomers tend to maintain a relatively constant level of information seeking from coworkers, they tend to increase their referent information seeking from supervisors. As mentioned earlier, this is consistent with Katz's (1980) suggestion that, with increasing time in the organization, newcomers become more concerned with performance evaluation. Thus, it is important for supervisors to be aware that it is a norm when a newcomer increases in the extent of seeking (from supervisors) information on performance expectations or evaluation and not to attribute this increase in referent information seeking to some adaptation difficulties experienced by the newcomer.

In addition to the knowledge about the basic nature of the intraindividual change, it is also important to be cognizant of the interindividual differences that may exist for a given proactivity or adaptation outcome. For example, while the present findings show that role clarity increases over time, they also show that newcomers differ in the rate of increase. These individual differences are systematic in that they are predictable from newcomer background characteristics. For instance, there is some evidence that individuals with lower rates of increase in role clarity tend to be newcomers who are females, domestic students, persons who are holding an outside job, and those who have higher GRE scores. Knowing the profile of newcomers who are more likely to have a

lower rate of increase in a particular adaptation outcome could help organizations identify and select different target groups for different interventions to facilitate adaptation. Note that without knowledge about the specific newcomer proactivity and adaptation in question including the associated nature of the intraindividual changes and interindividual difference in these changes, it is difficult if not impossible for supervisors and more generally organizations to identify unusual difficulties experienced by individual newcomers and effective methods of problem resolution before the difficulties lead to poor adaptation outcomes.

Finally, the results indicate that the self-report ratings given by newcomers and those independent ratings provided by supervisors on the same measures of adaptation outcomes were only weakly related. This low correlation suggests a mismatch between perceptions from newcomers and those from supervisors. Organizations should consider instituting practices or interventions to this disconnect in supervisor-newcomer perceptions. For example, it should be relatively easy to institute regular feedback sessions between supervisors and newcomers to communicate and clarify performance and role expectations.

Limitations of the Present Study

Several limitations concerning the measures used in the present study and the generalizability of the findings should be noted. First, the notion of previous transition experience as described and measured in the present study (i.e., as amount of experience) is in need of further conceptual and empirical development. Transition experience is

multidimensional; in addition to amount, previous transition experience can be conceptualized along different dimensions including type (e.g., cross-cultural, changes in job functions), quality (e.g., degree of favorability), level (e.g., task, job, organization), time (e.g., weeks, months), and predictability (e.g., planned versus unplanned). The precise nature of the relationship between newcomer previous transition experience and individual differences in growth parameters (i.e., initial status and rate of change) of the change trajectory is likely to depend on the specific dimension of experience in question. The problem of conceptualizing and measuring previous transition experience only in terms of amount is that it does not tell us if and how newcomers with different amounts of previous transition experience differ on the other dimensions of experience. These other dimensions may be more relevant in predicting individual differences in growth parameters of the trajectory describing intraindividual change on a focal variable. Future research should consider including several measures of previous transition experience assessing different dimensions. It is also important to control for relevant variables that may produce spurious inferences concerning associations between experience dimensions and intraindividual changes. For example, it is possible that in a given sample, an observed negative correlation between amount of previous transition experience and rate of increase in social integration is simply due to the fact that individual differences in the amount of previous transition experience is a direct result of individual differences in the ability to adjust successfully to new situations. That is, compared to those who are able to adjust successfully, individuals who are poor at adjusting are more likely to leave one

situation for another (i.e., they have a higher amount of previous transition experience) and increase their level of social integration at a lower rate. Thus, the selection of previous transition experience measures should be preceded by a careful delineation of the experience dimensions and a priori specifications of how each dimension is related to the growth parameters of the different proactivity and adaptation variables under investigation.

A second limitation concerns the use of self-report measures of newcomer adaptation outcomes. Because the primary interest in the present study was in newcomer perceptions and intraindividual changes in these perceptions, the use of self-report data is justified. However, the justification does not eliminate the potential problems of socially desirable responding and common method variance due to single source bias. Although the present study found that, on both newcomer proximal and distal adaptation outcomes, ratings provided by supervisors were higher than ratings provided by newcomers themselves, the extent to which influences of social desirability or other response sets, if any, are operating remains unknown. The present study addressed the problem of single source bias by collecting independent ratings of newcomer adaptation outcomes from supervisors and assessing convergent validity. Future research could also include peer ratings. In fact, for some adaptation outcomes such as social integration, it may be argued that peer ratings constitute a more valid source of information than self reports from newcomers. Note that the use of multiple ratings may also produce interesting patterns of results that increase our understanding of the newcomer adaptation process by

elucidating systematic differences in perspectives or perceptions of newcomer behaviors and activities from different constituencies (e.g., self, supervisor, coworkers). A different approach to addressing the problem of self-report measures is to search for alternatives to traditional questionnaire measures of proactivities and adaptation outcomes. Examples include objective indicators (e.g., attendance at social events organized at work) and infrequently used data collection methods such as experience sampling (Larson & Csikszentmihalyi, 1983) in which participants are asked to give systematic self-reports at random times during the week and event-contingent sampling (Wheeler & Reis, 1991) in which participants are required to record significant experiences in diaries as those events occur. These alternative methods, however, are also susceptible to several threats to validity. For example, objective indicators are often contaminated measures in that they also reflect situational influences beyond the control of the newcomer and independent of his or her proactive and adaptive behaviors. The validity of experience sampling may be threatened by reactivity problems in that the process of recording one's feelings and analyzing events at multiple times might influence the newcomer's proactivities and adaptive behaviors. The retrospective nature of event-contingent sampling makes the method susceptible to memory reconstructive effects. In short, for any data collection method selected, the researcher will have to be sensitive to the threats to validity and consider ways of reducing those threats. These measurement problems are ubiquitous in industrial-organizational psychology and are not unique to research on newcomer adaptation.

Although the response rates across all four waves of data collection were high, the sample size in the present study was relatively small. In addition, within the study, it was not possible to examine potential differences on the study variables between the present sample and those newcomers who did not participate in the study. Future research efforts to replicate the present findings on different and larger samples are needed. Studies using different jobs should be conducted to assess the generalizability of the present findings so that we can be more confident when making general substantive statements about intraindividual change in specific newcomer proactivities or adaptation outcomes. The assessment of generalizability of findings across samples, jobs, and settings is important because it identifies the boundary conditions of the inferences from the present study. For example, it is possible that the coworker relationships in many jobs or organizational contexts are qualitatively different from those in the graduate student setting and these differences may translate into patterns of intraindividual changes and interindividual differences in these changes that are distinct from those observed in the present study.

Finally, to extend the scope of the present study, additional variables could be included. Many of the proactivity variables, proximal and distal adaptation outcomes, and newcomer individual difference and background variables typically examined in prior research on newcomer adaptation are included in the present study. Of course, a much larger set of variables that are of potentially equal or more relevance to the newcomer adaptation process is excluded for practical reasons. With respect to information seeking, future research could examine information seeking via indirect

methods (e.g., monitoring) in addition to direct ones (inquiry) and compare the change trajectories of these different methods of information seeking. Many individual difference variables not examined in the present study are potential candidates as useful individual predictors of interindividual differences in intraindividual change. Examples include the Big-Five personality traits (Costa & McCrae, 1992), positive and negative affectivity (Watson & Tellegen, 1985), practical intelligence (Sternberg, 1994; Wagner & Sternberg, 1985), and cognitive problem-solving style (Kirton, 1976). As demonstrated in the present study, the latent growth modeling approach can incorporate different individual difference variables and simultaneously assess their relative importance in the prediction of individual differences in growth parameters (initial status and rate of change) of different focal variables (i.e., newcomer proactivities and adaptation outcomes). An understanding of the basic change trajectory as well as the systematic relationships involving these individual differences would provide the conceptual basis for designing general interventions to enhance successful newcomer adaptation and targeted interventions with those newcomers who are more susceptible to poor adaptation.

Future Research Challenges

The contribution of the present study is demonstrative rather than explanatory. That is, the study demonstrates that systematic interindividual differences in intraindividual changes can and do occur for a variety of newcomer proactivity and adaptation outcome variables and that different newcomer background or individual

difference variables can be identified as useful predictors of these interindividual differences. The latent growth modeling approach provides a unified model for conceptualizing and describing these interindividual differences in an explicit manner that directly links data to specific aspects of intraindividual change in the newcomer individual adaptation process. The challenge for future research is to replicate and extend the present findings using similar explicit linkages between data and specific facets of change. To increase our substantive understanding of interindividual differences in intraindividual change in the adaptation process, future research efforts would need to go beyond the descriptions of these differences to an explanation as to why they occur.

There are at least four challenges in the efforts toward an explanatory objective. First, there is the challenge of refining the way the notion of the focal change variable (i.e., proactivity or adaptation outcome) is conceptualized and operationalized. For example, the present study assumed that the meaning newcomers attached to the notion of role clarity is sufficiently similar so that it was meaningful to fit a single functional form of growth trajectory to the entire sample. Subsequent investigations could be directed at identifying distinct groups of newcomers who differ in the meaning they attach to the notion of role clarity and examining whether these groups exhibit different growth trajectories. For example, some newcomers would include supervisory expectations of newcomer performance of organizational citizenship behaviors whereas others would exclude them from consideration when self-assessing their levels of role clarity. It is an empirical question as to whether the two groups would share the same basic functional

form or growth parameter values in their intraindividual trajectory. More generally, multiple-group latent growth analyses may indicate potential moderator relationships (with the grouping variable as moderator) for future research.

Second, there is the challenge of ensuring that the same single construct is being assessed across time (and also across groups in multiple-group comparisons of growth trajectories) with repeated measurement. The type of intraindividual change described by the latent growth model is directly based on absolute differences in responses on the same measure obtained across repeated administrations. This type of change is often called alpha change (Golembiewski, Billingsley, & Yeager, 1976) and it refers to changes in absolute levels given a constant conceptual domain and a constant measuring instrument. However, we can meaningfully speak of alpha change only when there is measurement invariance of responses across repeated measurements. Measurement invariance across repeated measurement exits when the numerical values across measurements are on the same measurement scale (Drasgow, 1984; 1987). When there is measurement noninvariance of the responses in repeated measurement because of qualitative (i.e., conceptual) changes in the focal construct, values on the growth parameters (e.g., slope mean) and thus the nature of the growth trajectory in the latent growth models are no longer meaningful and standard interpretations of the parameter estimates are misleading. Prior work on latent growth analyses modeling change trajectories has not explicitly incorporated these measurement invariance concerns. Chan (under review) provides an

extensive treatment of how to test for measurement invariance across time and across groups in the context of latent growth modeling.

Third, there is the challenge of explicating the theoretical explanation for the specific aspect of change by specifying, measuring, and testing the purported causal pathways linking the variables of interest. For example, as noted above, intervening variables that are hypothesized to mediate between newcomer individual difference (or background) variables and rate of change in the focal variable can be directly measured and the mediation relationship can be tested within the latent growth model.

Finally, there is the challenge of systematically identifying the antecedents, correlates, and consequents of the different aspects of the intraindividual change that occur in the newcomer adaptation process. In addition to the variables examined in the present study, examples include antecedents of change such as problem solving styles and personality traits, correlates of change such as increase in job knowledge, changes in expectations about the job, and changes in peer or supervisor-subordinate relations, and consequents of change including proximal adaptation outcomes such as subjective well being and job attitudes and distal adaptation outcomes such as intentions to quit and withdrawal behaviors. Details of how the basic latent growth model can be extended to perform the multiple-group, multiple indicator, cross-domain, and mediation analyses are available in Chan (under review) and Muthen and Curran (1997).

Concluding Remarks

The successful construction of an empirically based theory of newcomer adaptation strongly depends on whether the associated empirical research provides explicit and direct linkages between data on change and specific aspects of change thought to occur. The essence of the newcomer individual adaptation process is the nature of the intraindividual changes that occur over time. Accurate assessment of intraindividual change necessitates the collection of repeated measures data over time. Valid inferences about the newcomer adaptation process from repeated measures data requires the specification of the nature of intraindividual changes in newcomer proactivities and adaptation outcomes and interindividual differences in these changes. This study demonstrates how a latent growth approach can provide a unified framework and a flexible analytical model for describing and assessing these changes. The study offers preliminary evidence of a individual adaptation process in which newcomers may exhibit systematic individual differences in patterns of intraindividual change in a variety of proactivity and adaptation variables that may be predictable from different individual difference or background variables. Several interesting findings including those on relationships that have not been previously examined were reported. It is hoped that the empirical demonstration provided in the present study would lead to more theory-driven empirical research efforts that would help elucidate the multidimensional and dynamic nature of the newcomer adaptation process.

APPENDICES

APPENDIX A

APPENDIX A

Proactive Personality Scale (Bateman & Crant, 1993)

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1. I am constantly on the lookout for new ways to improve my life.
2. I feel driven to make a difference in my community, and maybe the world.
3. I tend to let others take the initiative to start new projects. *
4. Wherever I have been, I have been a powerful force for constructive change.
5. I enjoy facing and overcoming obstacles to my ideas.
6. Nothing is more exciting than seeing my ideas turn into reality.
7. If I see something I don't like, I fix it.
8. No matter what the odds, if I believe in something I will make it happen.
9. I love being a champion for my ideas, even against others' opposition.
10. I excel at identifying opportunities.
11. I am always looking for better ways to do things.
12. If I believe in an idea, no obstacle will prevent me from making it happen.
13. I love to challenge the status quo.
14. When I have a problem, I tackle it head-on.
15. I am great at turning problems into opportunities.
16. I can spot a good opportunity long before others can.

APPENDIX A

17. If I see someone in trouble, I help out in any way I can.

Note. Responses are indicated on a 7-point Likert-type format anchored from strongly disagree (1) to strongly agree (7). * Reversed scored.

APPENDIX B

APPENDIX B

Items Assessing Previous Transition Experience

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1. How many different cities have you lived in (for more than one month) since you graduated from high school?

   1 = one city

   2 = two cities

   3 = three cities

   4 = four cities

   5 = five or more cities

2. How many different apartments/houses/student halls have you lived in (for more than one month) since you graduated from high school?

   1 = one

   2 = two

   3 = three

   4 = four

   5 = five or more

APPENDIX B

3. How many different schools/colleges have you attended since you graduated from high school?

   1 = one

   2 = two

   3 = three

   4 = four

   5 = five or more

4. Not counting your present job as a graduate student (i.e., your graduate assistantship), how many full-time jobs (not including summer jobs) have you had thus far?

   1 = None

   2 = One

   3 = Two

   4 = Three

   5 = Four or more

APPENDIX B

5. Not counting your present job as a graduate student (i.e., your graduate assistantship), how many full-time summer jobs have you had thus far?

   1 = None

   2 = One

   3 = Two

   4 = Three

   5 = Four or more

6. Not counting your present job as a graduate student (i.e., your graduate assistantship), how many part-time jobs have you had thus far?

   1 = None

   2 = One

   3 = Two

   4 = Three

   5 = Four or more

APPENDIX B

7. From the time you first entered school to this moment, how many student organizations have you been a member of (e.g., fraternity, press club)?

   1 = None

   2 = One

   3 = Two

   4 = Three

   5 = Four or more

APPENDIX C

APPENDIX C

Items Assessing Proactivity Variables

IMPORTANT: For all items, the term "work" refers to all aspects of the tasks and duties associated with your academic work as a graduate student which include those associated with your coursework, your work as a teaching assistant, and your work as a researcher/research assistant.

Technical Information Seeking From Coworkers

1. How frequently do you ask other graduate students how to perform specific aspects of your work?
2. How frequently do you ask other graduate students how to complete your work duties?
3. How frequently do you ask other graduate students how to use equipment and materials necessary to do your work (e.g., photocopier, fax machine, library catalogues, laboratory equipment)?
4. How frequently do you ask other graduate students how to solve technical problems you encountered on your work (e.g., problems with computer software, research equipment)?

APPENDIX C

Technical Information Seeking From Supervisors

1. How frequently do you ask faculty members how to perform specific aspects of your work?
2. How frequently do you ask faculty members how to complete your work duties?
3. How frequently do you ask faculty members how to use equipment and materials necessary to do your work (e.g., photocopier, fax machine, library catalogues, laboratory equipment)?
4. How frequently do you ask faculty members how to solve technical problems you encountered on your work (e.g., problems with computer software, research equipment)?

APPENDIX C

Referent Information Seeking From Coworkers

1. How frequently do you ask other graduate students what is expected of you in your work?
2. How frequently do you ask other graduate students for information about how your performance will be evaluated?
3. When there are several possible ways that you can perform your work, how frequently do you ask other graduate students which of the ways is preferred?
4. How frequently do you ask other graduate students what you can do to perform your work better?

Referent Information Seeking From Supervisors

1. How frequently do you ask faculty members what is expected of you in your work?
2. How frequently do you ask faculty members for information about how your performance will be evaluated?
3. When there are several possible ways that you can perform your work, how frequently do you ask faculty members which of the ways is more appropriate?
4. How frequently do you ask faculty members what you can do to perform your work better?

APPENDIX C

Relationship Building With Coworkers

1. To what extent have you tried to socialize with other graduate students in your program?
2. To what extent have you attended social gatherings organized by other graduate students in your program (e.g., parties, dinners, going to movies)?
3. To what extent have you started casual conversations with other graduate students in your program?
4. To what extent have you tried to get to know as many graduate students as possible in your program?

Note. For all information seeking items, responses are indicated on a 7-point format (1 = never, 2 = once a month, 3 = a few times a month, 4 = once a week, 5 = a few times a week, 6 = once a day, 7 = a few times a day). For relationship building with coworkers, responses are indicated on a 5-point Likert-type format (1 = to no extent, 2 = to a little extent, 3 = to some extent, 4 = to a large extent, 5 = to a great extent).

APPENDIX D

APPENDIX D

Items Assessing Proximal Adaptation Outcomes

IMPORTANT: For all items, the term "work" refers to all aspects of the tasks and duties associated with your academic work as a graduate student which include those associated with your coursework, your work as a teaching assistant, and your work as a researcher/research assistant.

Task Mastery

1. I feel competent performing my work tasks.
2. It seems to take me longer than planned to complete my work tasks. *
3. I rarely make mistakes when performing my work tasks.
4. I am confident about the way I perform my work tasks.

Role Clarity

1. I am clear what is expected of me in my work.
2. I have useful information about how my performance will be evaluated.
3. When there are several ways to perform my work, I know which way is more appropriate.
4. I know what I can do to perform my work better.

APPENDIX D

Social Integration

1. Other graduate students in the program seem to accept me as one of them.
2. I have developed personal relationships with many graduate students in the program.
3. I feel very comfortable around other graduate students in my program.
4. I feel that I am "integrated" with other graduate students in the program.

Note. Responses are indicated on a 7-point Likert-type format anchored from strongly disagree (1) to strongly agree (7). * Reversed scored.

APPENDIX E

APPENDIX E

Items Assessing Distal Adaptation Outcomes

IMPORTANT: For all items, the term "work" refers to all aspects of the tasks and duties associated with your academic work as a graduate student which include those associated with your coursework, your work as a teaching assistant, and your work as a researcher/research assistant.

Overall Job Performance

Relative to other graduate students in your doctoral program, how would you rate yourself on the following performance dimensions?

1. Overall work quality.
2. Achievement of work goals.
3. Meeting performance standards.
4. Completing job assignments on time.

Overall Job Satisfaction

1. I am very satisfied with the kind of work I do in my work as a graduate student.
2. Overall, I am very happy with my work.
3. I like my work as a graduate student very much.

APPENDIX E

Organizational Commitment

1. I talk about my doctoral program to my friends as a great program to work in.
2. I feel very little loyalty to my doctoral program. *
3. I am glad to tell others that I am part of this doctoral program.
4. It would take very little change in my present circumstances to cause me to leave this doctoral program. *
5. I am extremely glad that I chose this doctoral program to work in, over other programs I was considering at the time I joined.
6. There's not too much to be gained by remaining with this doctoral program. *
7. For me, this is the best of all possible doctoral programs to work in.
8. Deciding to work in this doctoral program was a definite mistake on my part. *

APPENDIX E

Professional Commitment

For the following items, the term "profession" refers to the profession that you are being trained for in your doctoral program (e.g., clinical psychology, engineering).

1. I talk about my profession to my friends as a great profession to work in.
2. I feel very little loyalty to my profession. *
3. I am glad to tell others that I am part of this profession.
4. It would take very little change in my present circumstances to cause me to leave this profession. *
5. I am extremely glad that I chose this profession to work in, over other professions I was considering at the time I joined.
6. There's not too much to be gained by remaining with this profession. *
7. For me, this is the best of all possible professions to work in.
8. Deciding to work in this profession was a definite mistake on my part. *

Note. Responses for overall job performance are indicated on a 5-point response format (1 = below or equal to 20th percentile, 2 = 21st to 40th percentile, 3 = 41st to 60th percentile, 4 = 61st to 80th percentile, above or equal to 80th percentile). Responses for overall job satisfaction, organizational commitment, and professional commitment are indicated on a 5-point Likert-type format anchored from strongly disagree (1) to strongly agree (5). * Reversed scored.

APPENDIX F

APPENDIX F

Items Assessing Background Characteristics

1. Are you

   (1) male (2) female

2. Are you

   (1) a domestic student (2) an international/foreign student

3. Are you (*if you are an international/foreign student, leave blank*)

   (1) African American (3) Hispanic American (5) Native American

   (2) Asian American (4) White American (6) Other

4. What is your age?

   (1) under 20 years (3) 22 to 23 years (5) 26 to 30 years

   (2) 20 to 21 years (4) 24 to 25 years (6) above 30 years

5. Will you be working on either a thesis or dissertation research as part of the requirements of your Masters/Doctoral degree?

   (1) yes (2) no

6. For the Fall 1997 semester, my graduate assistantship is best described as

   (1) a teaching assistant

   (2) a research assistant

   (3) both a teaching assistant and a research assistant

   (4) I am not holding any MSU graduate assistantship and I am financially sponsored by MSU fellowships

APPENDIX F

(5) I am not holding any MSU graduate assistantship and I am financially sponsored by other official non-MSU agencies (e.g., national fellowships, foreign fellowships)

(6) I am not holding any MSU graduate assistantship

7. Outside my graduate assistantship and academic work as a graduate student,

(1) I am not holding any paid part-time jobs

(2) I am holding one paid part-time job

(3) I am holding more than one paid part-time job

(4) I am employed full time

APPENDIX G

APPENDIX G

Faculty Member Questionnaire

Items Assessing Proximal Adaptation Outcomes

IMPORTANT: For all items, the term "work" refers to all aspects of the tasks and duties associated with the student's academic work as a graduate student which include those associated with his/her coursework, his/her work as a teaching assistant, and his/her work as a researcher/research assistant.

Task Mastery

1. The student is competent in performing his/her work tasks.
2. It seems to take the student longer than planned to complete his/her work tasks. *
3. The student rarely makes mistakes when performing his/her work tasks.
4. The student is confident about the way he/she performs his/her work tasks.

Role Clarity

1. The student is clear what is expected of him/her in his/her work.
2. The student has useful information about how his/her performance will be evaluated.
3. When there are several ways to perform his/her work, the student knows which way is more appropriate.
4. The student knows what he/she can do to perform his/her work better.

Note. Responses are indicated on a 7-point Likert-type format anchored from strongly disagree (1) to strongly agree (7). * reversed scored.

APPENDIX G

Items Assessing Distal Adaptation Outcomes

IMPORTANT: For all items, the term "work" refers to all aspects of the tasks and duties associated with the student's academic work as a graduate student which include those associated with his/her coursework, his/her work as a teaching assistant, and his/her work as a researcher/research assistant.

Overall Job Performance

1. Overall work quality.
2. Achievement of work goals.
3. Meeting performance standards.
4. Completing job assignments on time.

Overall Job Satisfaction

1. The student seems very satisfied with the kind of work he/she does in his/her work as a graduate student.
2. Overall, the student seems very happy with his/her work.
3. The student seems to like his/her work as a graduate student very much.

APPENDIX G

Organizational Commitment

1. The student seems loyal to this program.
2. The student seems glad that he/she is part of this program.
3. The student seems to have a sense of commitment to this program.

Professional Commitment

For the following items, the term "profession" refers to the profession that the student is being trained for in this program.

1. The student seems loyal to this profession.
2. The student seems glad that he/she is part of this profession.
3. The student seems to have a sense of commitment to this profession.

Note. Responses for overall job performance are indicated on a 5-point response format (1 = below or equal to 20th percentile, 2 = 21st to 40th percentile, 3 = 41st to 60th percentile, 4 = 61st to 80th percentile, above or equal to 80th percentile). Responses for overall job satisfaction, organizational commitment, and professional commitment are indicated on a 5-point Likert-type format anchored from strongly disagree (1) to strongly agree (5).

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