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CONSTRUCTIVE-DEVELOPMENTAL LENS

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EXAMINING WORK RELATIONSHIPS AND BEHAVIORS THROUGH A
CONSTRUCTIVE-DEVELOPMENTAL LENS

A DISSERTATION APPROVED FOR THE
MICHAEL F. PRICE COLLEGE OF BUSINESS

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EXAMINING WORK RELATIONSHIPS AND BEHAVIORS THROUGH A
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INTRODUCTION

In 1979 Weick suggested that managers should strive to broaden their

perspective on their organizations and their environment and develop an ability

to look at situations from multiple perspectives. Building on this idea, Bartunek

and Gordon (1983) pointed out that Weick's advice can be better understood

through the lens of three interrelated theoretical perspectives: the principle of

complementarity (Bohr, 1950) – which posits that many phenomena can be

understood only when viewed from multiple perspectives, theories of cognitive

complexity (Harvey, Hunt, & Schroder, 1961) – which suggest that some

individuals are more cognitively complex and thus more able to apply multiple

perspectives, and theories of adult development (Kegan, 1980; Kohlberg, 1987;

Loevinger & Blasi, 1976) – which indicate that cognitive complexity is only a

part of a broader pattern of development.

In my three-essay dissertation I employ constructive-developmental

theories to explain why some individuals develop more positive relationships at

work, and why some individuals are more proactive at work. I hope to

accomplish two main things in this endeavor: develop a theoretical foundation

for exploring work relationships and behaviors through the lenses of

constructive-developmental theories, and develop and validate an objective instrument to assess adult developmental stages. I believe that studying the implications of adult developmental stages in work contexts is important because developmental stages influence how individuals experience organizational life, including how they interact with others in the organization, what kind of problems they find challenging, and how they approach work. Thus, applications of developmental theories in management should enhance our understanding of how to best lead, motivate, and match employees to organizations.

My first essay is an analysis of the sense making that occurs as a function of the individual's developmental level and the developmental challenges present in the environment. I apply constructive-developmental perspectives to suggest that similar to an individual, an environment (i.e., one's supervisor, work group, and organization) can also be said to be more or less developmentally advanced. As such, I explore the consequences of person-environment fit – seen through a constructive-developmental lens – on person-supervisor, person-group, and person-organization relationships. My second essay focuses on the design and validation of a more objective measure of developmental stage. Existing instruments, such as the Washington University Sentence Completion Test developed by Jane Loevinger, are projective in nature and are fairly difficult to deploy and score. To demonstrate criterion validity, I will test the relationships between developmental stages and the performing of proactive behaviors by individuals. I expect individuals at higher

developmental stages to be more proactive because of their increased tolerance for ambiguity, comfort with accountability, and desire for autonomy. Lastly, my third essay will be a test of predictions with regard to the leader-member exchange relationships that develop between leaders and followers at different developmental stages. I anticipate that individuals at different developmental stages will have different theories about what good followership and good leadership is, and thus expect different things from their counterparts.

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ESSAY 1: A CONSTRUCTIVE-DEVELOPMENTAL PERSPECTIVE ON PERSON-ENVIRONMENT FIT

Abstract

In this study I explore the concepts of person-supervisor, person-group, and person-organization fit through a constructive-developmental lens. I suggest that both individuals and their environments can be characterized according to developmental typologies, based on the practices and assumptions that govern them. Consequently, different degrees of fit may exist, depending on the developmental level of the focal individual and the developmental challenges in his/her environment. I draw on constructive-developmental theories and on research on person-environment fit to suggest that, while a lack of fit generally has negative consequences, a moderate lack of fit can actually be beneficial and result in the development of the focal individual.

The old lady and young woman illusion was first publicized in an ad campaign by the Anchor Buggy Company in 1888 and deftly illustrated the concept of perceptual ambiguity. Some primarily see the young woman and others primarily see the old lady. Importantly, we can look at the same picture and generate different interpretations of that picture. This incongruence is not an uncommon event and occurs quite frequently with respect to our sense making. Fundamentally, perception and understanding are intimately intertwined procedures that have a great influence upon our human experience. In order to sharpen these processes, researchers have long advocated for developing methodologies to facilitate the complexity with which mangers both perceive and understand (Bartunek, Gordon, & Weathersby, 1983; McCauley, Drath, Palus, O'connor, & Baker, 2006; Weick, 1979). Complicated understanding, Weick argued, helps managers better understand and treat business problems more holistically and broadly, rather than through a narrow interpretive frame of reference. For example, Merron, Fisher, and Torbert (1987) found that managers with a more "complicated understanding" were more likely to redefine a problem, question the assumptions in the definition of the problem, and treat the problem as a symptom of greater problem, while those with a narrow understanding were more likely to treat the problem in isolation, accept the given definition of the problem, and ignore the underlying causes of the problem. Following on this idea, Bartunek et al. (1983) were among the first proponents of using adult development theories (e.g., Kegan, 1980; Kohlberg, 1987; Loevinger & Blasi, 1976) to explain how a complex

understanding can be developed in managers. Unfortunately, since these initial efforts, only a dearth of applications of developmental theories have made it into the mainstream management and leadership literature (e.g., Valcea, Hamdani, Buckley, & Novicevic, 2011). Recently, McCauley et al. (2006) integrated the findings of several studies which support the idea that leaders at higher developmental stages tend to be more effective in their leadership roles.

Adult development theories are concerned with how individuals make sense of themselves and the surrounding world (McCauley, et al., 2006). This highlights their application not only in explaining leadership behaviors and effectiveness, but how they extend into the everyday work of other employees as well. Nevertheless, studies that employ developmental theories to look at how regular employees interpret their environment, henceforth called followers, are scarce and generally focus on how developmental aspects are reflected in the way followers perceive their leaders (e.g., Roth, 1996). As a form of individual difference, dissimilarities in meaning making systems are expected to influence a broad array of organizational phenomena. In the present study I rely on conceptualizations of person-environment fit to suggest that individuals at different developmental stages will experience different outcomes in terms of the quality of their relationship with their supervisors, their attraction to their work team, and their commitment to the organization. Relational aspects such as organizational commitment and satisfaction with supervisors and with workgroups are some of the outcomes most strongly related to person-environment fit. Thus, they make the most theoretically

and empirically intuitive candidates for dependent variables when studying fit from a constructive-developmental perspective. In addition, many developmental perspectives have a strong interpersonal relationship component, such as the concern for other peoples' feelings as a motive for moral action in Kohlberg's (1987) theory of moral development, the ability or inability of individuals to reflect upon or call into question their interpersonal relationships in Kegan's (1980) theory of orders of conscientiousness, and the specific interpersonal development domain that is included in Loevinger's (e.g., Loevinger & Blasi, 1976) ego development construct. Thus, there is a great potential for cross-fertilization between these two theoretical fields. In my treatment of fit from a constructive-developmental view, I rely on recent perspectives which suggest that developmental stages characterize not only individuals, but also organizational cultures (McCauley, et al., 2008). Thus, the developmental stage of the individual will produce different outcomes as a function of their fit to the developmental stages of the supervisor, group, and organization.

This paper is an attempt to fill three important lacunas. First, it is an attempt to elucidate the role of developmental stages in the way individuals experience work life. Second, it suggests that adult developmental stages are an important and overlooked type of Person-Environment (P-E) fit. This is important because developmental stages are a more integrative dimension of individual differences that may subsume differences in personalities, values, and attitudes (Loevinger & Blasi, 1976). Lastly, it discusses the possibility where lack of fit will not always

result in negative consequences. More specifically, when lack of fit exists because of mismatch between an underdeveloped focused individual and a developmentally advanced comparison entity, the challenges that ensue may foster a developmental growth in the focal individual, provided that the comparison entity offers sufficient support.

The paper is organized as follows: First, I briefly review the main tenants of constructive-developmental theories (for a thorough review of management and leadership studies that employ a constructive-developmental frameworks, see McCauley, et al., 2006), and I present the recent application of developmental perspectives to leadership cultures and my own perspective on group developmental stages. Then I discuss how developmental stages affect the three types of fit. I then conclude with a discussion of the practical and theoretical implications of the propositions presented in this paper.

CONSTRUCTIVE-DEVELOPMENTAL THEORY

Erected around Piaget's (1954) seminal work on child development, adult developmental theories (also referred to as constructive-developmental theories; Kegan, 1980) seek to explain how individuals interpret their experiences in increasingly complex ways. In a recent review of constructive-developmental theories, McCauley et al. (2006, p. 636) summarized seven basic propositions pertaining to this stream of research:

"1. People actively construct ways of understanding and making sense of themselves and the world (as opposed to "taking in" an objective world).

2. There are identifiable patterns of meaning making that people share in common with one another; these are variously referred to as stages, orders of consciousness, ways of knowing, levels of development, organizing principles, or (in this article) orders of development.

3. Orders of development unfold in a specific invariant sequence, with each successive order transcending and including the previous order.

4. In general, people do not regress; once an order of development has been constructed, the previous order loses its organizing function, but remains as a perspective that can now be reflected upon.

5. Because subsequent orders include all earlier orders as special cases, later orders are more complex (they support more comprehensive understanding) than earlier orders; later orders are not better in any absolute sense.

6. Developmental movement from one order to the next is driven by limitations in the current way of constructing meaning; this can happen when a person faces increased complexity in the environment that requires a more complex way of understanding themselves and the world.

7. People's order of development influences what they notice or can become aware of, and therefore, what they can describe, reflect on, and change (Cook-Greuter, 2004)."

These proposals point to the two aspects of development that are central in constructive-developmental theories: the orders or stages of development and the developmental movement (or the way these orders unfold over time). McCauley et al. (2006) synthesized the different developmental theories to propose a succinct, three-order categorization of meaning making principles: the Dependent order, the Independent order, and the Inter-independent order. Each of these three

development orders "is governed by a unique logical and cognitive process, interpersonal orientation, and mode of ethical judgment" (Fisher & Torbert, 1991, p. 145), and influences what an individual can notice, describe, reflect on, and change (Cook-Greuter, 2004). I describe the orders briefly below and return to the idea of developmental movement later.

The first order of development according to McCauley is called Dependent because the sense of self is dependent on the individual's connections with others. Dependent order individuals are primarily concerned with gaining the approval of others. As such, their thinking will be heavily influenced by others' opinions. The preference for working according to clearly defined rules and regulations is clearly apparent at this order, while personal initiatives and independent decisions are rare exceptions (Cook-Greuter, 2004). In fact, dependent individuals resent being asked to reflect on problems (Roth, 1996), and they expect their leaders to provide solutions and direction. Moreover, because they see conflict as a threat to their relationships, dependent individuals are unlikely to openly criticize the decisions of superiors.

Independent order individuals seldom see themselves in terms of how others view them, but rather tend to rely on their own, internally generated set of values and standards (McCauley, et al., 2006). The concern shifts from being accepted to achieving individual and organizational objectives within the organizational system, improving the effectiveness of the system, and facilitating their interaction with others in the system (Torbert, 1987). Individuals at this order

may see conflict as a source of clarification and better solutions (McCauley, et al., 2006). As such, they welcome critical feedback when it helps them achieve their goals (Cook-Greuter, 2004). Instead of expecting clear direction, independent individuals cherish autonomy, demand to be involved in decision making, and expect their leader to negotiate with them the alternative paths of action and to provide support to them when needed (Drath, 2001).

Inter-independent order individuals are concerned with the on-going development of self and others (McCauley, et al., 2006). These individuals manifest an increased tolerance for conflict as an inevitable aspect of relationships and as a source of mutual transformation and growth. They value diversity and autonomy of thought and action to the point of allowing others to make their mistakes and learn from them (Loevinger & Blasi, 1976). Inter-independent individuals also prefer to work in groups where everyone is committed to work on challenges collectively, and expect group leaders to create the conditions for group to develop a shared direction (Drath, 2001). Empirical findings indicate that only about 7 percent of the adult population ever progresses to this last stage (Cook-Greuter, 2004).

Developmental theories share some conceptual ground with Maslow's Hierarchy of Needs theory (e.g., Maslow, 1943). For example, Maslow's self-actualized person corresponds closely to the Inter-Independent stages of development. Moreover, just like Maslow's theory recognizes that individuals can be motivated by needs from all levels of the hierarchy, developmental theories

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recognize that individuals can display behaviors typical of all developmental stages. Loevinger, in particular, points out that development is not a series of irreversible achievements, akin to a series of courses in mathematics (Loevinger & Blasi, 1976, p. 142); thus individuals at high stages of development can still display behaviors characteristic of the lower stages. However, Maslow sees stages in his theory as corresponding increasing levels of psychological health, with the self-actualized state as the highest state of psychological health. Developmental theories do not necessarily consider developmental stages as being related to health or adjustment. Individuals can be very well adjusted to their environments even if they are at lower stages of development. Moreover, individuals at the higher orders of development can actually be maladjusted to their environments, depending on the characteristics of the environment, a topic which I will return to later.

A CONSTRUCTIVE-DEVELOPMENTAL PERSPECTIVE ON LEADERSHIP CULTURES AND PRACTICES

Recently, researchers have started looking at the functioning of collectives through a constructive-developmental lens(e.g., McCauley, et al., 2008; Rooke & Torbet, 1998). McCauley et al. (2008) proposed that collectives have leadership cultures and practices that can be characterized as dependent, independent, or interdependent (closely corresponding to the dependent, independent and inter-independent framework proposed for individuals in McCauley et al. (2006). These increasingly complex cultures are assumed to be incrementally better adapted to multifaceted market and environmental challenges. McCauley et al. (2008) describe the three types of culture as follows:

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Dependent leadership cultures and practices emphasize top-down control and deference to authority. Leadership is the sole responsibility of people in authority positions. Consequently, seniority and position are important sources of status. Conflict is avoided or dealt with smoothly. McCauley et al. (2008) refer to these cultures as "conformer" cultures.

Independent leadership cultures and practices emphasize the importance of individual knowledge and expertise as a source of leadership. Decision making is decentralized, individual responsibility is demanded, and competition among individuals is encouraged. In independent cultures the main source of success and status is one's performance. Moreover, open disagreement is tolerated and seen as a source of local improvement. These cultures can be referred to as "achiever" cultures.

Interdependent leadership cultures and practices emphasize mutual inquiry and collective learning as sources of leadership. Collaboration and dialogue are likely to be widely used as synergies are sought across the whole enterprise. This culture minimizes hierarchical differences and conflict is seen as an opportunity to improve the whole organization. McCauley et al. (2008) call these "collaborative" cultures.

McCauley and colleagues' (2008) exploratory study demonstrated that organizations do indeed exhibit the developmental characteristics described above. However, these leadership cultures and practices seemed to coexist within

organizations, with some approaches being more dominant. Moreover, the highest developmental order was never the dominant logic, leading McCauley and her colleagues to conclude that interdependent cultures and practices are the exception, rather than the norm in organizations. The coexistence of different practices also suggests the possibility that work groups in organizations may display different sub-cultures. Previous studies have revealed that subcultures can exist within the greater organizational culture (e.g., Jermier, Slocum Jr, Fry, & Gaines, 1991; Sackmann, 1992). For example, Jermier et al. (1991) analyzed a police organization and found several subcultures, only one of which closely resembled the official or espoused culture of the organization. Moreover, given that the developmental orders of leadership cultures and practices, as defined by McCauley et al. (2008), are likely to be influenced by the developmental orders of the individuals working in these organizations, some within-culture variance is expected. In this paper I rely on McCauley's framework to describe not only leadership cultures and practices of organizations, but also of work groups within the organization. Thus, groups will be described as dependent, independent, or inter-independent, based on the criteria discussed earlier. I will describe next the proposed dynamics between individuals and their environment (i.e., supervisors, peers, groups, and the organization), as a function of their respective developmental orders.

A DEVELOPMENTAL PERSPECTIVE ON PERSON-ENVIRONMENT FIT

The idea that environments, not only individuals, can display characteristics that can be classified according to constructive-developmental theories into

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qualitatively different developmental orders surfaces two important questions.

First, what happens when there is a mismatch between individual and environment

in terms of developmental orders? Second, given that individuals and environments

can be advanced to higher developmental orders, under what conditions is

development feasible? I rely on conceptualizations of Person-Environment fit (P-E

fit) in my attempt to answer these questions. P-E fit is defined as the compatibility

between the characteristics of a work environment and the characteristics of an

individual (Kristof-Brown, Zimmerman, & Johnson, 2005). Several types of fit

have been proposed, including fit with one's supervisor, work group, or

organization, leading Schneider (2001) to refer to the P-E concept as a "syndrome

with many manifestations" (p. 142). In this paper I will rely on these three types of

fit to discuss the influence of the individual's developmental order on how the

individual relates to his/her peers and supervisor, work group, and organization.

Developmental Orders and Dyadic Relationships

Studies investigating the outcomes of fit in dyadic relationships have

largely focused on leader-follower relationships (Kristof-Brown, et al., 2005).

These studies suggest that perceived similarity between leaders and followers – an

indicator of good person-supervisor fit – results in better leader-member exchange

(e.g., Liden, Wayne, & Stilwell, 1993). Leader-member exchange (LMX) is

defined as the quality of the interpersonal social-exchange between a subordinate

and his/her direct supervisor (Liden & Maslyn, 1998). When the dyadic

relationship is between two peers, the quality of this relationship is referred to as

co-worker exchange (CWX; e.g., Sherony & Green, 2002). Given that developmental orders influence the interpersonal style of individuals, I expect them to also influence the quality of relationships that individuals develop at work. First and foremost, individuals at the same developmental order should be more similar to one another in terms of how they process, understand and integrate increasingly complex experiences (McCauley, et al., 2006), including work-related experiences. According to the similarity-attraction paradigm (Byrne, 1971), individuals develop schemata about what constitutes good performance or contributions, and positive social interactions – important aspects of the leader-member exchange relationship (Greguras & Ford, 2006).

These schemata result in more favorable evaluations of individuals that are similar to the self (Byrne, 1971). Studies in the LMX literature support this expectation. For example, better LMX relationships develop between people who have similar attitudes and who behave in accordance to each other's implicit theories of performance (Engle & Lord, 1997). Epitropaki and Martin (2005) find similar results with respect to LMX and implicit theories of leadership: individuals develop better LMX relationships with other individuals who fit the ideal profile espoused by their implicit theory. I expect similar mechanisms to be at play in the case of developmental levels; thus, people should develop more positive exchange relationships (LMX or CWX) with other people occupying the same developmental order. In addition, a larger gap in the developmental orders of two individuals is likely to result in a substantially less optimal relationship than a smaller gap. In

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support of this idea, for example, Berger and Fitzgerald (2002) argued that the differences between dependent followers and inter-independent leaders may be so large that these leaders may become dissatisfied with their leadership roles.

Proposition 1a: An individual's exchange relationships are more positive with same-order individuals than with different-order individuals.

Proposition 1b: A dependent individual experiences more positive relationships with an independent individual than with an inter-independent individual.

Previous research provides evidence of multiple dimensions that make up the LMX construct (see Schriesheim, Castro, & Cogliser, 1999, for a review). There are many conceptualizations of the dimensionality of LMX and myriad proposed dimensions, including loyalty, structure, liking, attention, latitude, competence, authority, openness to change, flexibility, and mutual support. In this paper I employ the conceptualization proposed by Liden and Maslyn (1998). Relying on role theory (e.g., Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), these authors suggest that individuals in organization can assume very different roles, and thus engage in different kinds of social exchanges. These exchanges can be summarized in a four-dimension conceptualization of LMX: affect (i.e., mutual liking, friendship), loyalty (i.e. expression of public support and mutual obligations), contribution (i.e., performing work above what is required) and professional respect (i.e., respect for professional abilities) (Liden & Maslyn, 1998). There is some evidence that different individuals place different emphasis on the various dimensions of LMX depending on whether they are in leadership or in followership roles (cf., Day & Crain, 1992; Dockery & Steiner, 1990). However,

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the more general question of whether certain dimensions are stronger drivers of the quality of the relationship than others, and more importantly, if certain individuals place more emphasis on some dimensions rather than others regardless of their status in the dyad (i.e., supervisor vs. subordinate), has yet to be resolved.

Constructive-developmental theories suggest that individuals at different stages of development may have significantly different understandings of themselves and the world and that different understanding may, in turn, influence the kinds of exchange that are expected, on one hand, and possible, on the other hand, between individuals of different developmental stages. Put differently, the roles that individuals assume at work may vary according to their developmental stage. For example, dependent individuals emphasize loyalty and conformity to norms and rules, while the independent individuals emphasize efficiency (which may lead them to break norms or rules, if necessary; Cook-Greuter, 2004) and expect and allow for more autonomy in relationships. Moreover, in contrast to independent individuals, dependent individuals find it difficult to engage in activities that are seen as potentially generating conflict, such as expressing disagreement or holding others accountable for their work (Spillett, 1995). In their effort to be liked and accepted, dependent individuals in leadership roles may be reluctant to delegate tasks, for fear that subordinates may not like the extra responsibilities, and may seek to gain unanimous group consensus on decisions (Hirsch, 1988; Spillett, 1995). Thus, I expect that as individuals move from dependent to independent stages, the contribution dimension of LMX is

emphasized more, while the loyalty and affect dimensions are emphasized less. In addition, because of the preoccupation for achievement that independent individuals have, it is also likely to find a greater emphasis on the professional respect dimension at this stage, compared to individuals at the dependent stage.

> *Proposition 2a: Individuals at different developmental orders emphasize different dimensions in their definition of high-quality LMX relationships.*
>
> *Proposition 2b: Compared to dependent order individuals, independent order individuals put more emphasis on the contribution and professional respect dimensions of LMX and less emphasis on the loyalty and affect dimensions of LMX.*

Developmental Orders and Perceptions of Group Cohesion

In terms of group outcomes, the P-E fit literature indicates that person-group fit has a strong relationship with group cohesion (Kristof-Brown, et al., 2005). Cohesion has been defined as the degree of interpersonal attraction and task commitment that exists in a group (Zaccaro, 1991). Recent studies show that cohesion has both individual level and group level manifestations (Friedkin, 2004). In this model I focus on the individual's perception of group cohesion. Cohesion has been shown to be related to both surface and deep-level diversity (Jehn & Mannix, 2001; Milliken & Martins, 1996; Williams & O'reilly, 1998), such that more homogeneous groups are usually also more cohesive than the less homogenous groups. In addition, because cohesion is argued to be a multi-level phenomena, it is likely to be affected by interpersonal interactions between group members (e.g., Morgeson & Hofmann, 1999). Both these perspectives suggest that a fit between the developmental order of an individual and the developmental order

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of a group may influence the individual's perception of cohesion with the group. Developmental orders are regarded as a dimension of individual differences, similar to differences in personality. As such, they constitute a source of deep-level diversity. Moreover, developmental orders influence the interpersonal style of the individual, and thus the kinds of interactions that are likely to occur among group members.

As discussed earlier, individuals at different developmental orders may have different expectations with regards to interpersonal interactions. Similarly, groups at different developmental orders will be characterized by different interactions patterns that may or may not fit with the expectations of the focal individual. For example, dependent order groups which are more likely to emphasize external indicators of value, such as professional or educational background, may not be particularly compatible with independent individuals who like to define their own criteria for what is valuable and emphasize individual performance and achievements. The different emphasis on what actually constitutes acceptable group performance (i.e., following group norms, in the case of dependent groups, vs. individual performance, in independent groups) may also result in different levels of group task commitment for dependent and independent individuals, as a function of their fit to the group. Moreover, the larger the gap in developmental orders, the less likely it is that the focal individual sees the group as cohesive.

Proposition 3a: An individual's perception of group cohesion is greater for individuals at the same developmental order as the group.

Proposition 3b: A dependent individual perceives higher cohesion when assigned to an independent group than to an inter-independent group.

I suggested earlier that, depending on what developmental stage they occupy, individuals may have substantially different expectations from one another in terms of work relationships. When this is compounded to the group level, it follows that groups may have significantly different expectations of their group members, and individuals of their groups. With respect to group cohesion, I expect that individuals and groups will emphasize the social aspects or the task aspects of group cohesion, depending on their developmental stage.

Research on group cohesion has consistently suggested that cohesion is a bi-dimensional construct consisting of two different aspects: the interpersonal or social cohesion – the degree to which individuals have good relationships with other members of the group – and the task cohesion – including the degree to which group membership allows for attainment of personal goals, but also the degree of shared commitment to the task of the group (e.g., Zaccaro & Lowe, 1988; Zaccaro & Mccoy, 1988). The two dimensions have been shown to relate differently to outcomes of cohesion, including team performance and quality of team decision making. For example, Zaccaro and Lowe (1988) find that only task cohesion had an effect on performance in an additive task, while Zaccaro and McCoy (1988) found that both types of cohesion are important for disjunctive tasks. More recently, Chang and Bordia (2001) found that task cohesion more strongly predicted

subjective group performance than social cohesion, while social cohesion more strongly predicted the intention to work with that same group in the future.

With regard to decision making, Mullen, Anthony, Salas, and Driskell (1994) meta-analysed previous studies and found that when cohesion was understood more in terms of its interpersonal component, groups were more likely to suffer from groupthink (e.g., Janis, 1972). This different understanding was a function of the researcher's different operationalization for cohesion. I suggest that, just as researchers understand cohesion in different ways, so do other individuals and groups. Dependent individuals and groups strive to preserve group harmony. Complaints are seen as a threat and thus are avoided or smoothed out (Spillet, 1995), even though this may be costly in terms of performance. This provides some evidence that dependent groups may emphasize the social aspects of cohesion at the expense of the task aspects of cohesion. The tendency to emphasize social harmony at the expense of critical thinking is not unlike the effects observed by Janis (1972) with respect to groupthink. For example, Janis found that individuals who suffer from groupthink avoid dissent and keep silent about their own doubts with regards to the group activity. This kind of behaviour is likely to occur in dependent groups which strive to minimize conflict. On the other hand, independent groups and individuals tolerate open conflict as a source of improvement (McCauley, et al., 2008). Individual performance, accountability and competition among individuals are emphasized. Thus, the task cohesion component of group cohesion may be of primary importance for such individuals and groups.

Finally, inter-independent groups and individuals emphasize the potential for

mutual learning and growth in their interactions with other members of the group.

The high tolerance for different points of view and the focus on global

effectiveness (McCauley, et al., 2008) suggests that both task cohesion and social

cohesion are emphasized to equal extents.

Proposition 4a: Individuals and groups at different developmental orders emphasize different dimensions of group cohesion.

Proposition 4b: Dependent individuals emphasize social cohesion over task cohesion.

Proposition 4c: Independent individuals emphasize task cohesion over social cohesion.

Proposition 4d: Inter-independent individuals emphasize task and social cohesion to the same degree.

Developmental Orders and Organizational Commitment

Fit with the overall organization is strongly correlated with organizational

commitment (Kristof-Brown, et al., 2005). I expect that a good fit on the

developmental order dimension between the individual and the organization will

lead to similar results. Organizational commitment is defined as the perceived

psychological bond that employees have with the organization for which they work

(Johnson, Chang, & Yang, 2010; Klein, Molloy, & Cooper, In press). The concept

is usually understood to encompass three dimensions: affective commitment –

consisting of an affective attachment to the organization based on shared values and

goals, normative commitment – consisting of a perceived obligation to continue to

work for the organization, and continuance commitment – consisting of the associated costs of leaving the organization (e.g., Meyer & Allen, 1991). The affective dimension of commitment is of particular interest in the context of this paper because of its emphasis on shared goals and values between the focal individual and the organization. This emphasis is in tune with the P-E fit approach that I have suggested here.

Individuals who are at the same developmental order as the organizations in which they work may not necessarily share the same goals and values. However, what will be common are the expectations with regard to how these goals are chosen. Dependent individuals, for example, expect goals to be decided at the top and then passed down the hierarchy. They expect their leaders to inspire commitment to the goals (Drath, 2001). This expectation is most likely to be met in dependent organizations, which put increasing emphasis on the role of hierarchical superiors in terms of creating direction and gaining acceptance for organizational goals. In contrast, independent individuals expect leaders to treat them as autonomous individuals, and thus negotiate and reason with them to define goals and gain support for goals (Drath, 2001). This is likely to happen more in organizations at the independent order, where autonomy and individuality is cherished. Finally, inter-independent individuals expect their leaders to create the conditions for group members to jointly create goals and direction, a possibility that is most likely to become a reality in inter-independent organizations.

In sum, a lack of fit in terms of developmental characteristics may lead to a dissatisfaction with the process of defining goals and direction, which might result in lower affective commitment. In contrast, when fit is good, commitment should increase. Developmental perspectives provide more theoretical support for this proposition. Block (1982), for example, suggests that most adults never develop to the highest developmental orders because they find and inhabit comfortable niches at work, where developmental challenges are scarce. Put differently, they identify environments to which they are developmentally fit, and remain in those environments. Other findings from the commitment literature can also be better understood from the lens of developmental theories. For example, Meyer and Allen (1991) listed work experiences as important predictors of affective commitment. These included some very different experiences such as role clarity and freedom from conflict on one hand, and autonomy, job challenge, and participation in decision making on the other hand. The question of whether some employees need certain experiences more than others, or whether there is a generalizable set of needs that everybody shares still stands (Meyer & Allen, 1991). It is, however, plausible, that the diversity of experiences that have been linked to commitment stems from the fact that individuals at different developmental levels prefer some experiences over others. For example dependent individuals may prefer more role clarity rather than increased autonomy, while the opposite should be true for independent and inter-independent individuals who are better equipped to deal with ambiguity but also tend to demand more flexibility and latitude. The expectation

for one type of experience or another is less likely to be met in an environment that operates from a different developmental order as the focal individual, resulting in decreased affective commitment.

In addition, the greater the lack of person-environment fit, the lower the affective commitment is likely to be. Constructive-developmental theories posit that development occurs in a fixed sequence, such that going from the dependent to the inter-independent order will always involve first developing to the independent order. Couple with the fact that developmental movement is a difficult experience involving a "fear of losing meaning"(McCauley, et al., 2006), I expect that when the gap between the individual and the environment is high, commitment to the organization is likely to be particularly low.

Proposition 5a: Individuals are more committed to organizations in which the leadership culture is at the same developmental order as the individuals.

Proposition 5b: Dependent individuals are more committed to organizations that have an independent leadership culture than to organizations that have an interdependent leadership culture.

Lack-of-Fit as a Developmental Catalyst

While many adults never progress beyond the dependent order, studies show that further development is possible (Manners, Durkin, & Nesdale, 2004; White, 1985). Kegan and Lahey (2001) suggested that the key to developmental movement is a balance of support and challenge for the current meaning making system. Support occurs when the environment reinforces the current meaning

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making system. In contrast, challenge occurs when the current meaning making system proves inadequate to deal with new problems, its limitations being thus revealed. Too much support may result in limited incentive to change. Too much challenge may also trigger a conservation of the current meaning making system, as a result of a fear of losing meaning (Kegan & Lahey, 2001).

In addition, challenges must be dis-equilibrating for the current stage of the individual, personally salient, emotionally engaging, and interpersonal in nature (Manners & Durkin, 2000). Because work life is a major component of an individual's identity and work life elicits both positive and negative emotions (such as life satisfaction or stress) as well as serves the stage for complex interpersonal dynamics, it is easy to see how work life meets the last three requirements on Manners and Durkin's list. The arguments presented earlier on the consequences of fit (or lack of fit) also suggest that organizational life can be challenging with regards to one's developmental order (i.e., when the organization is at a more advanced developmental order than the focal individual). Researchers have suggested, however, that challenges at a level that is slightly above the individual's current order of development can be overcome and can also foster development (e.g., Loevinger & Blasi, 1976) . Findings in the P-E fit literature also resonate with this idea. Kristof-Brown et al. (2005), for example, argue that the negative effects of a lack of fit in terms of the skills required to perform well in the organization may be mitigated by a better fit in the needs that the organization can satisfy for the individual. Put differently, challenges can be overcome if support exists.

Based on these arguments, I propose that a moderate lack of fit can be developmental for the focal individual, when the environment offers enough support. I use environment in a broad sense to include the focal individual's supervisor, peers, work team, and organization. By moderate lack of fit I understand a one-order difference between the individual and his/her environment. This would satisfy the need for challenge without overwhelming the individual and triggering a resistance to change. By support I understand any actions that reinforce, rather than challenge the current meaning making system of the individual. For example, a dependent individual may be asked to come forth with his/her own ideas about certain organizational matters – thus challenging his/her reliance on rules and procedures – but may be provided with direction and guidance in other organizational matters – thus supporting his/her need to follow existing authority.

A clear distinction needs to be made between the concepts of support for the current developmental order of an individual, and the concept of organizational support in general (Eisenberger, Huntington, Hutchison, & Sowa., 1986). Perceived organizational support has to do with the resources and benefits the employee receives from the organization (Rhoades & Eisenberger, 2002). Support for the current developmental order is less related to what resources an individual receives and more related to the "readiness" of the individual to handle a specific situation. To illustrate this distinction, suppose an individual is charged with revising the performance appraisal system of an organization in order to increase accountability.

The organization gives this person sufficient authority to make decision in this respect and assigns staff to help him or her draft the new system. While all these qualify as forms of support, they ignore the particularities of developmental orders. Dependent individuals find it particularly difficult to hold others accountable, because the potential for conflict is threatening to their self-image. Thus, in spite of organizational support, being in a role that creates conflicts of loyalty is likely to be very challenging for dependent people. For such situations, authors have suggested that "face-saving" mechanisms should be built in to make Dependent individuals more comfortable. For example, Cook-Greuter (2004) suggested that critical feedback should be given on concrete behavioural aspects in group settings, without naming anyone. In the example above the organization could take steps to deflect some of the responsibility from the focal person to the upper layers of management, such that the individual can still save face. This would constitute as a form of support for his or her current stage of development.

Proposition 7: Support moderates the effect of a moderate lack of fit, such that negative effects of a lack of fit are more likely to be observed in the absence of support, than in the presence of support.

DISCUSSION

Managerial Implications Potential of Lack-of-Fit Situations

The constructive-developmental perspective on the three different types of fit provides three inter-related implications for managers: 1) lack of fit is not necessarily a bad thing, if it can be used to develop an individual further; 2)

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understanding the developmental needs of individuals can help reduce the tensions between the individual and his/her environment, when a lack of fit exists; and 3) lack of fit can be used to develop the environment, when the focal individual is more developmentally advanced and is given sufficient authority. I discuss these three points in more detail next.

The fit literature has long recognized the consequences of a lack of fit (see Kristof-Brown, et al., 2005, for a thorough review); nevertheless, a constructive-developmental perspective reveals that, to some degree, lack of fit may be manageable and even beneficial. A perfect fit on developmental characteristics of the individual hand his/her environment may mean a too benign environment in which there is little incentive to grow. Thus, too much fit may result in more harmony between the individuals and his or her work environment, but also in stagnation for the individual. In contrast, moderate degrees of lack of fit may challenge the individual to adapt his or her system of understanding in order to better cope with the realities of the environment. Thus, fit is not necessarily a make or break component of a relationship between an employee and his or her environment. Some degree of lack of fit can be tolerated and, more importantly, can lead to the further development of the employee. Managers need to exercise a proper organization of the lack of fit so that positive, rather than negative consequences can be attained. Developmental theories provide a useful framework for managing the lack of fit, by describing the experiences that are challenging or supporting of the current developmental order of individuals. As such, managers

can act to create a balance of support and challenge, such that any existing lack-of-fit situations are transformed into developmental experiences for individuals. Moving to higher developmental stages may have radical implications for individual performance. For example, studies have shown that medical doctors at higher stages had practices worth many times more than doctors in the same field, but at lower developmental stages (Hirsch, 1988).

Earlier, I suggested that when a lack of fit exists between the individual and his/her environment (i.e., supervisor and co-workers, work team, organization), the individual will experience less positive relationships with his/her environment. This is expected to happen because of the tension between the demands of the environment and the needs of the individual. When the environment is more developmentally advanced, the individual may experience negative consequences such as less positive work relationships, lower group integration, and less organizational commitment because of the increased challenge in the environment. Managers may avoid such consequences by tailoring work assignments to the developmental needs of the individual. For example, dependent individual may be assigned to teams that exhibit practices at the dependent order. Alternatively, when such assignments are not possible, managers can tailor their leadership style to the particular needs of the individual, such that more direction and structure is provided to individuals at lower orders, while more autonomy is allowed to individuals at higher orders. A mix of different such measures can be taken to ensure a proper balance between challenge and support for an individual's system of understanding.

Another important implication is that the lack of fit on developmental criteria may prevent organizations from hiring and retaining precisely those employees that have the ability to foster development in the organization's culture, or in the practices of teams and supervisors. Loevinger and Blasi (1976), for example, point out that the differences between the higher developmental orders and the lower developmental orders may be enough to prevent those at lower developmental orders from properly understanding an open-ended written response by those at the higher orders to a measure of developmental stage. We can expect similar situations in organizations, where highly developed individuals may be rated poorly in their employment interviews by recruiters who are at lower stages. Moreover, if selected, these individuals may experience dissatisfaction with the work environment and eventually leave. Yet, if the environment itself is to develop further, the inputs of such individuals must be secured. For example, Valcea et al. (2011) argued that followers can contribute to the development of their leaders. It is possible that similar effects exist for groups and organizations, if highly developed individuals are given more central roles. Thus, recognizing those individuals that are more developmentally advanced and then assigning them to leadership, rather than followership roles, may help foster a more developmentally advanced team culture and organizational culture.

Theoretical Implications and Directions for Future Research

There are also some important theoretical implications of the ideas proposed in this paper. First, these perspectives add to the person-environment fit

literature and provide a more comprehensive understanding of fit. This perspective also more explicitly addresses both positive and negative consequences of good fit. In addition, this perspective allows for the dynamic re-evaluation of fit, since both individuals and environments can advance to higher developmental stages, and thus reset, to some extent, the previous fit balance. For example, an employee who advances to the independent stage may no longer feel that she or he is fitting in the work team or with the current organization, if these operate from the dependent stage. Rules and norms that were previously held in high regard and followed religiously may now appear too rigid and stifling to the employee who has moved to a higher stage of development. Attrition may result, thus, even for employees who were previously a good fit with the environment, when these employees move to a higher stage of development. These employees may feel that there is little room for them to grown in the current organization, even when opportunities for promotion exist, because they no longer employ the same way of understanding as the rest of the organization. Employing a developmental perspective allows for the study of such dynamics and opens the door for further theoretical developments on how to meet such challenges, by identifying the specific characteristics of the ways of understanding that individuals and organizations may use at each developmental stage.

Related to this dynamism, another area of interesting applications of constructive-developmental perspectives is organizational change. Researchers have suggested that individuals at higher developmental orders are better suited for

leading organizational change efforts (e.g., Fisher & Torbert, 1991). While few studies have investigated this phenomenon, some evidence in support of this expectation exists: Rooke and Torbert (1998) found that organizational change efforts were more likely to be successful when led by individuals at the inter-independent stage. Future research should also look into the implications of constructive-developmental theories for managing the change process. Organizations may sometimes need to changes their culture, if the culture is dysfunctional and threatens organizational survival; nevertheless, cultures are often times resistant to change. A constructive-developmental perspective offers unique insights into the reasons for this resistance: when an individual goes through the process of developmental movement, a sense of losing meaning can occur when the individual can no longer fully understand the reality through the previous meaning system but has not yet developed a more advanced system either. The same may be true for groups or entire organizations. By studying the characteristics of each stage of development, better theories of change management may be developed. Such models may more accurately describe what challenges emerge during change efforts and where are they more likely to occur, depending on where each individual or work group is on the developmental scale.

The explicit consideration of developmental fit also opens avenues for research in the interaction between this particular type of fit with other types of fit. Although not specifically addressed in this paper, it is reasonable to expect that no one type of fit will be the sole determinant of any outcome. For example, it likely

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that fit on personality and values between and mentor and a protégé may interact with the fit on developmental stages to produce outcomes. While fit on personality and values is likely to result in a smoother working relationship, a moderate lack of fit on developmental stages (i.e., a slightly more developmentally advanced mentor) may result in better mentoring outcomes for both parties involved. On one hand the protégé benefits from the more complex way of understanding that the mentor can employ; on the other hand the mentor may derive more satisfaction from his or her mentoring role, when observing the protégé making the transition from a simpler to more complex conceptual, relational, and moral understanding. Thus, this additional perspective on fit allows for a better match between the individual and his or her environment.

Fit with the organization could also be looked at in terms of the respective obligations that employees and the organization that employs them have of one another. Unstated expectations about any obligations beyond what is specified in a written job contract that the organization and the employee have towards one another make up the psychological contract of an individual (e.g., Rousseau, 1990). It is plausible that individuals at different developmental orders will have different such expectations. Independent individuals, for example, value autonomy and may be more likely to include increased discretion in how they do their job as part of their psychological contract. Inter-independent individuals may expect more opportunities for growth and development, because of their increased concern with the development of self and of others.

In sum, grounded in constructive-developmental theories, the ideas proposed in this paper provide a more complete understanding of how fit with the work environment can influence work relationship with the supervisor, team and the larger organization. It will hopefully fuel new research that takes advantage of the potential these theories have to explain important management problems.

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ESSAY 2: DEVELOPING AND VALIDATING A MORE OBJECTIVE MEASURE OF EGO DEVELOPMENT

Abstract

Constructive-developmental theories are concerned with the increased complexity in meaning making that individuals might potentially reach as they mature. One of the most well supported constructive-developmental theory is Loevinger's (1976) theory of ego development. This study reports the development and validation of a more objective test for ego development. The instrument is designed based on Loevinger's (1970) Washington University Sentence Completion Test. The new measure shows moderate convergent validity with the current semi-projective measure (r=.41). Empirical results suggest that more work is needed to improve the discriminant and criterion validity of this measure.

Constructive-developmental theories explain why individuals make sense of their environment in different ways and how the sense making of individuals develop according to a structured pattern over time. Several competing conceptualizations of sense making exist, including Kohlberg's (1987) moral reasoning construct, Kegan's (1980) orders of conscientiousness and Loevinger's (1976) ego development construct. While differences in focus do exist, all these conceptualizations share the idea of increasingly complex ways of organizing reality that can be achieved over the course of an individual's life. Studies have shown that more complex sense-making systems have a multitude of positive outcomes for organizational and individual outcomes. For example, individuals with complex sense-making systems engaged in more strategic thinking when managing their business, while those with simpler sense making focused increasingly on operational concerns (Hirsch, 1988); this resulted in significantly more profitable business for the former category. Turner, Barling, Epitropaki, Butcher and Milner (2002) employed Kohlberg's (1987) conceptualization and found that individuals that scored higher on the moral development scale were more likely to engage in transformational leadership (e.g., Bass, 1985).

Individuals who possess more complex meaning systems also appear to receive significantly better evaluations from peers and subordinates above and beyond what could be explained solely through personality variables (Strang & Kuhnert, 2009). Such empirical findings, together with theoretical arguments that constructive-developmental perspectives may offer unique insights into work

phenomena (Bartunek, Gordon, & Weathersby, 1983) encourage a greater emphasis on application of these theories to management research. In particular, McCauley, Drath, Palus, O'Connor, and Baker (2006) suggested that constructive-developmental theories may be particularly suited for explaining organizational change and the development of leadership in organizations. Nevertheless, constructive-developmental theories have made little headway in the mainstream management literature. One of the reasons identified by McCauley et al. (2006) is the lack of an easy to implement instrument to measure developmental stages. This study is concerned with the development of such an instrument.

Loevinger's theory of Ego development (Loevinger & Blasi, 1976) is one of the most validated of the available developmental theories. Like other developmental theories, this theory suggests that individuals exhibit patterns of development in adult life, moving towards increasingly complex ways of understanding themselves and their surrounding reality. One of the theory's strengths is its frequently validated measurement instrument – the Washington University Sentence Completion Test (WUSCT). The WUSCT is a semi-projective test which rests on interpreting respondents answers to a set of 36 unfinished sentences. This instrument has been used in a great number of studies with many thousands of subjects. Yet, its use has been mostly restricted to the psychology and education fields. This may be due, at least in part, to the difficulty of including the test in research endeavors. The accurate coding of respondents' answers requires extensive training on the part of the rater. Loevinger first published a manual on

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how to use the test in 1970. A revision of this manual was published in 1990. The manual provides examples of possible answers at the different developmental stages, explains the logic behind the answers, and provides guidelines on how to interpret answers. The process is time consuming and prone to error on the part of the rater. Loevinger has repeatedly suggested that projective tests are the best way to capture the construct of ego development. While I agree with her, I believe that if this theory is to make any contributions to the mainstream management literature, a satisfactory time- and cost-efficient instrument needs to be developed. An interesting situation has occurred here: An outstanding construct with myriad possible applications in management has been overlooked due to the complexity of the measurement of the construct. In order to remediate this issue, this study is an earnest attempt at developing an objective test of ego development out of the WUSCT.

STAGES OF EGO DEVELOPMENT

According to Loevinger and Blasi (1976), ego is a construct that represents the way individuals integrate and make sense of their experiences. It is a "master trait", encompassing other developmental domains, including moral development (e.g., Kohlberg, 1969), intellectual development (Perry, 1970), and interpersonal understanding (Selman, 1980). The development of the ego is conceptualized by Loevinger through a hierarchy of stages that an individual may go through in an invariantly sequential manner. Each stage is characterized by a self-concept that is redefined and reorganized in terms of four interwoven domains of human

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development: cognitive style, interpersonal style, character development, and conscious preoccupations.

Cognitive style refers to the cognitive development of individuals. Individuals at higher ego stages manifest more conceptual complexity and more tolerance for ambiguity, in contrast to the conceptual simplicity manifested at lower ego stages. *Interpersonal style* has to do with the way individuals understand relationships with other persons, and with the preference of individuals for different types of relationships. At higher ego stages, individuals are more respectful of each other's autonomy, in contrast to the exploitive approach of individuals at lower ego stages. *Character development* subsumes the types of moral concerns individuals have, the basis on which individuals decide to act morally, and the degree of control that individuals have over their impulses. Being impulsive and acting morally out of a fear of getting punished is characteristic of lower ego stages. Self-control and internalized moral standards are characteristics of higher ego stages. *Conscious preoccupations* capture the dominant issues that influence an individual's conscious thinking and behavior. These may be self-protection at the lower stages, but may evolve into conformity to social rules, responsibility, independence and individuality at higher stages. Table 1 summarizes the ego stages from Impulsive – the lowest stage measureable through sentence completion test – to Integrated – the highest known stage. In their review of constructive-developmental theories, McCauley et al. (2006) summarize these stages into a simpler 3-stage framework: Dependent (ego 4 and 5), Independent (ego 6 and 7)

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and Inter-Independent (ego 8 and 9). Ego levels 2 and 3 are called Pre-Dependent and not treated in detail in their review, as they are considered to occur with a lower frequency in adult populations. The Loevinger and Blasi (1976) and McCauley et al. (2006) designations are used interchangeably throughout the rest of this paper.

--- Insert Table 1 here ---

The four interwoven domains of development presented above are not separate dimensions of ego. Rather, they display different facets of a coherent process of development (Loevinger & Blasi, 1976). Loevinger further points out that, while a stage conceptualization of ego is a necessary abstraction, a more accurate conceptualization is that of a typology. In other words, ego is not a set of discrete stages, but may involve continuous variations as well. What is fundamentally different from other psychological constructs is that each stage cannot be reduced to quantitative variations on any dimensions. For example, conformity is one of the characteristics of Dependent Stages of ego development. We may thus be tempted to determine whether a person belongs to one of these stages based on how high or low they rate on a continuous measure of conformity. A person high on the scale can reasonably be said to belong to the Dependent stages; however, a person low on the scale may either belong to the Pre-Dependent or the Independent or Inter-Independent stages. Thus, the use of polar continuous variables to measure certain aspects of ego and then infer on the ego development stage may provide misleading results. The particularities of a typology or stage

conceptualization restricts the use of traditional psychometric methods to develop

measure of ego development. I return to this problem in the discussion of the

measurement strategy used in this study.

VALIDATION STRATEGY

To demonstrate acceptable validity for the new more objective

measurement instrument, convergent and discriminant validity tests will be

conducted. According to Kerlinger and Lee (1999) to demonstrate convergent

validity one needs to show significant and at least moderate mono-trait multi-

method correlations in a multi-trait multi-method matrix. In order to demonstrate

discriminant validity, on the other hand, one needs to look at hetero-trait multi-

method and hetero-trait mono-method correlations, which should indicate should

reveal significant positive and negative correlations, as well as non-significant

correlations as predicted by theory. To demonstrate convergent validity in this

study I will examine the correlation between the new instruments developed for

this study and the WUSCT scores. If the objective instruments indeed capture ego

development, their scores should be highly correlated with WUSCT collected at a

different point in time. To demonstrate sufficient discriminant validity I will test

the correlations of the new ego measures with two of the variables that are likely to

be confounded with ego: intelligence and socio-economic status (Manners &

Durkin, 2001). Another variable that may be confounded with ego – namely verbal

fluency – was excluded from this study because the new ego measures do not

require the respondent to write down an answer. Finally, to demonstrate criterion

validity and make a stronger case for the use of developmental theories in the mainstream management literature, I will test the relationship with an important work behavior: proactive behavior. Theoretically, proactive behaviors should be related to the stage of ego development because of the more complex and autonomous thinking that individuals have at higher stages. Higher orders individuals are more comfortable with stepping out of the rigid boundaries of norms and rules that govern the thinking of lower ego individuals. In the next section I present arguments to support that indeed ego development should be related to the proactivity of employees.

EGO DEVELOPMENT AND PROACTIVE BEHAVIORS

Proactive behaviors are defined as "anticipatory action that employees take to impact themselves and/or their environments" (Grant & Ashford, 2008, p. 4). These behaviors have received increased attention from researchers, particularly because many organizations see them as important for their competitiveness (Crant, 2000; Grant & Ashford, 2008). Grant and Ashford (2008) suggested that proactive behaviors occur when employees find themselves in situations of high accountability, increased ambiguity, and large autonomy, with dispositional traits having a moderating effect on the situations. In essence, this model implies that proactive behaviors depend largely on the motivation of employees to engage in such behaviors, and that motivation rests with situational and dispositional variables. However, other researchers argue that employees may also differ with account to their ability to engage in proactive behaviors (e.g., Bolino, Valcea, &

Harvey, 2010). Bolino et al. (2010) suggested that some employees may not have the resources to deal with increased organizational expectations of proactivity, and may experience stress. This thought is echoed by findings in the constructive-developmental literature which show that dependent order individuals may be particularly uncomfortable when asked to show initiative (Roth, 1996). This suggests that developmental orders and proactive behaviors may be related.

A closer look at the proposed situational antecedents of proactive behaviors reveals why an individual's developmental order may influence his/her ability to engage in proactive behaviors. Drath (1990), for example, argued that the willingness to assume responsibilities and to be held accountable, as well as the ability to work comfortably in a system of hierarchical accountability are particular strengths of independent order managers. In contrast, dependent managers tend to defer to a higher authority, rather than make autonomous decisions (Smith, 1980). Moreover, while dependent order individuals tend to rely on rules and procedure to deal even with ambiguous problems (Smith, 1980) and find great challenge in ill-defined, ambiguous roles (Van Velsor & Drath, 2004), independent individuals make their own decisions based on their own expertise, and are open to taking new responsibilities. Finally, the need for autonomy is much more pronounced at the independent order than at the dependent order. Drath (2001), for example, suggests that dependent individuals expect clear guidance and direction from their superiors, while independent individuals expect their superiors to treat them as autonomous individuals. In sum, by employing a cognitive style that is less reliant on rules and

procedures, and having a conscious preoccupation for achieving efficiency and effectiveness (Torbert, 1987), as opposed to avoiding conflict and following norms, independent individuals should be both more capable and more willing to be proactive at work.

However, increased capability and willingness to be proactive might not necessarily translate in more proactive behaviors for all types of proactive behaviors. The need for some proactive behaviors might indeed decrease with ego, hence their chance of occurrence may be lower rather than higher for higher ego individuals. Given the nature of the sample used in this study (i.e. college students), I look at two types of proactive behaviors that are likely to occur in a classroom setting and that may have quite different relationships with ego: voice behavior and information seeking behavior.

Voice behavior is defined as constructive change-oriented communication meant to improve the status-quo (Van Dyne & Lepine, 1998). The definition and the operationalization of the construct suggest that it may be related to ego development. Lower ego individuals are more likely to keep quiet about problems or try to deal with problems smoothly rather than openly, in an effort to preserve group harmony (Spillett, 1995), whereas higher ego individuals are increasingly concerned with their effectiveness (Torbert, 1987), and thus may be more inclined to see conflict as a source of clarification and improvement (McCauley, et al., 2006) and to voice out their concerns more openly. Moreover, looking at the items used to measure voice (e.g., Van Dyne & Lepine, 1998) strengthens this

hypothesis. One item reads as "this particular co-worker communicates his/her opinions about work issues to others in this group even if his/her opinion is different and others in the group disagree with him/her." This clearly indicates a decreased concern for conforming and an increased concern for effectiveness, which distinguishes between dependent ego stages and independent ego stages.

Hypothesis 1a: Higher ego individuals, as measured by the WUSCT are more likely to engage in voice behaviors than lower ego individuals.

Hypothesis 1b: Higher ego individuals, as measured by the objective ego measure, are more likely to engage in voice behaviors than lower ego individuals.

According to Morrison (1993), there are several types of information that individuals are likely to seek: technical information – or information about how to perform job tasks, referent information – information about role demands and expectations, normative information – information about expected behaviors and attitudes, performance feedback information – information about how others are evaluating their job performance, and social feedback information – information about the acceptability of their non-task behaviors. In this study I focus on performance information because it is relevant in a classroom setting which provides for comparatively less interaction between individuals than a real work setting, and because there is more theoretical support to relate it to ego stages. Individuals at dependent ego stages, for example, prefer to work according to clearly defined rules and regulations (Cook-Greuter, 2004), and thus expect their supervisors to be more involved and more directive (McCauley, et al., 2006). In fact, dependent individuals resent being asked to reflect on problems (Roth, 1996),

and expect their leaders to provide solutions and direction. Moreover, because they see conflict as a threat to their relationships, dependent individuals are unlikely to openly criticize the decisions of superiors. Their thinking will be heavily influenced by others' opinions. Thus, in contrast to individuals at higher stages, dependent individuals may rely to a greater extent on communication from their supervisors to determine how well they are doing on the job. On the other hand, individuals at the Independent stages of ego development need more autonomy and rely to a greater extent on their own standards to evaluate themselves and others (McCauley, et al., 2006). Their ability to exercise self-criticism may also make them less reliant on others for evaluating their own performance. Thus, I expect that the need to exercise performance feedback information seeking behaviors is likely to decrease as individuals advance to the Independent stage of ego development.

Hypothesis 2a: Individuals at Independent ego stages, as measured by the WUSCT, are less likely to engage in performance information seeking behavior than individuals at Dependent ego stages.

Hypothesis 2b: Individuals at Independent ego stages, as measured by the objective ego measure, are less likely to engage in performance information seeking behavior than individuals at Dependent ego stages.

MEASUREMENT STRATEGY

Before proceeding further into a more detailed description of the process of developing a more objective measurement of ego, a discussion of the different philosophies behind differential psychology psychometrics and developmental psychology psychometrics is warranted. Differential psychology assumes that if

certain traits exist, they must exist in some measurable amount. Then factorial analysis is used to separate and define the indicators of a trait. In contrast, developmental psychology assumes that if a trait exists, it must have developed and that development can be traced (Loevinger & Blasi, 1976, p. 204). The philosophy, which leads to a focus on milestones, rather than polar variables as descriptors of human nature, is the behind the development of the WUSCT. In defending this approach, Loevinger argues that despite ego being a polar variable by its very definition, its most easily observed manifestations are milestones (i.e., stages; Loevinger & Blasi, 1976, p. 208). The interwoven domains of development presented earlier are not dimension that can be quantitatively assessed, but rather different aspects of an underlying developmental process. There is no one-to-one correspondence between any particular behaviors or traits and the different stages of ego development. Moreover, while certain behaviors may discriminate between two stages, they fail to discriminate between other stages. Loevinger gives the simple example of walking as a sign of physical development in early childhood: while walking may discriminate between very young children, past a certain age most humans walk fine and the behavior no longer has any discriminant power. Coupled with the fact that individuals display behavioral signs from all levels of ego development, it becomes difficult to use polar variables as indicators of ego.

Because factorial methods employed in differential psychology treat all variables as polar variables, they are not useful in the development of instruments meant to capture stages of development. Instead, theory is used to develop items

that tap into the "set of syndromes" (Loevinger & Blasi, 1976, p. 205) characteristic of the stages in question (in this case, ego stages), and then an algorithm is used to determine the overall stage of the person. The question of what algorithm should be used is closely related to the conceptualization of ego that the researcher employees. Loevinger and Blasi (1976) identify three broad conceptualizations of ego. Some researchers conceptualize ego as a latent ability (e.g., Isaacs & Haggard, 1966). According to this approach, individuals can exhibit signs of all ego levels they have passed though up until their current level, but cannot exhibit signs of ego levels above their current level. Consequently, these researchers use the highest score as the indicator of current ego stage. Another approach is to conceptualize ego as a profile of dispositions – a profile of scores on all the separate ego levels. The third conceptualization defines ego as a core functioning – a dominant tendency with observable symptoms above and below the core function. This is the view adopted by Kohlberg (1987) and Loevinger and Blasi (1976), and is also used in the current study. The algorithms used to quantify the symptoms are usually based on some measure of central tendency. Kohlberg (1987), for example, uses an algorithm based on the mode of the distribution of scores on several items.

Instrument Design

There exist previous attempts to develop more objective measures for constructs similar to the ego development construct. For example Rest, Cooper, Coder, Masanz and Anderson (1974) developed an objective test for the stages of

moral development proposed by Kohlberg (1987). Their approach was to present the subject with a moral dilemma and then ask the subject to rank a number of issues related to the dilemma according to the importance of each issue. These issues corresponded to the different stages of moral development. A similar approach is used in the current study. The objective ego development measure was developed drawing on the WUSCT, particularly on the scoring manual developed by Hy and Loevinger (1996). Ten out of the 36 items in the WUSCT were selected to be included in the two new objective measures (the items are listed in Appendix 1). The main criteria for selecting items were: 1) the items should be universal (i.e., not male or female specific items in the WUSCT) and 2) the items should not be focused on the subject. Examples of items in the WUSCT that are focused on the subject include Item 7:"My mother and I…" and Item 23: "I am…" More general items were preferred instead, such as Item 1: "When a child does not join in group activities…", or Item 2:"Raising a family…"

Six forced-choice test items were constructed by use of the scoring manual example responses (e.g., Hy & Loevinger, 1996). Each forced-choice item asked the respondent to read the sentence and choose from one of two sentence completions that appeared in the manual. These sentence completions would correspond to four different ego stages, from ego stage 4 – Conformist – to ego stage 7 – Individualistic. These correspond to the Dependent and Independent stages in the shorter McCauley et al. (2006) typology. No items corresponding to pre-Dependent and Inter-Independent stages were included because these stages

were expected to be poorly represented in the sample collected for this study (i.e., college students). The answers were chosen from the numerous examples in the manual based on the reported frequency of occurrence. More frequently occurring answers were preferred to more unique answers, with the expectation that a greater number of respondents at that particular stage would relate to the answer

METHODS

Data were collected through two online surveys sent to 225 students in an undergraduate management class at a mid-western university in the United States. A total of 167 students (74.22% response rate) provided complete responses to both surveys. The average age of the respondents was 21.38 years and 43.7% of the respondents were female. The surveys were separated by a period of one month.

Measures

The first survey collected data on ego development using the WUSCT test; a 50-item International Personality Item Pool (IPIP) Big 5 personality scales (e.g., Goldberg, et al., 2006) and a 10-item Proactive Personality (Seibert, Kraimer, & Crant, 2001) were also collected. In addition to these personality items, I also collected demographic data (i.e., age, gender, and ACT scores), as well as the education level of the family leader – to be used as a proxy for socio-economic status. ACT scores were used as proxies for intelligence.

The second survey collected data on ego development using the instrument developed for this study. There are several ways to arrive at a final score for each

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respondent, including using the modal answer or some modification of the modal algorithm (e.g., Rest, et al., 1974). In this study the total score was calculating by averaging the choices of each forced-choice item. Further, the MS Excel linear programming Solver add-on was used to further refine the instrument by identifying items which, when dropped from the calculation of the final score, significantly improved the correlation between the new measure and the original measure. A total of 18 out of the 60 items administered were retained in the final analysis (see Appendix 2). Two self-report measures of proactive behaviors were also administered in this survey. Voice behavior was measured using five items adapted from Van Dyne and LePine's (1998) scale. Example items include "When working on student team projects, I communicate my opinions about project issues to others in the team even if my opinion is different and others in the team disagree with me" and "When I have a thought about something we are discussing in class, I mention it even if it is at odds with what my professor says." Performance Information Seeking behaviors were measured with items adapted from Morrison's (1993). Social desirability was measured using the short version of Crowne and Marlowe's (1964) scale proposed by Strahan and Gerbasi (1972). With the exception of Social Desirability (alpha=.61), all other scales had acceptable reliability of over .70.

RESULTS

Before analyzing any relationships between study variables, I performed a frequency analysis to determine whether each ego stage was well represented in the

sample. As expected, none of the students in the sample displayed characteristics specific of the highest, Inter-Independent ego stages (i.e., ego stage 8 and 9). However, surprisingly, a significant number of students actually scored in the Pre-Dependent range (i.e., ego stages 2 and 3). This raised some initial concerns about whether the objective instrument would show sufficient convergent validity, given that no items corresponding to these low stages were included in this study. The modal stage in this study was the Self-aware stage; this is consistent with previous findings in the literature (Manners & Durkin, 2001).

--- Insert Table 2 here ---

Correlation analysis revealed a moderate correlation of .41 between the WUSCT and the objective measure of ego development, providing some evidence of convergent validity. However, neither of the two measures of ego development showed significant correlations with either proxy measures for intelligence, or with SES. Ego measured through the sentence completion test showed a weak (r=-.15) and but significant correlation with performance feedback information seeking behavior, providing preliminary support for hypothesis 2. However, neither measures of ego were significantly correlated with voice behavior. Thus, there was no preliminary support for hypothesis 1 from the univariate analysis, and little support for discriminant validity of the new measure overall.

--- Insert Table 3 here ---

Multivariate analysis was performed next, to further examine the discriminant and convergent validity of the new scales, as well as to test the hypotheses of the study. Convergent validity was tested first, by running a model with ego level measured through the objective test as a dependent variable and ego level measured through the WUSCT as a predictor, while controlling for the possible confound variables – intelligence and SES – and for gender and age. The model was significant but only explained about 22% of the variance in ego level as measured through the objective measure. Moreover, none of the control variables showed any significant effects on ego measured through the objective measure. Taken together with the univariate results, there is only modest evidence of convergent validity for the objective measure of ego development and no evidence of discriminant validity in this study.

--- Insert Table 4 here ---

To further investigate whether the lack of discriminant validity may have been sample-driven, I tested the relationship between ego measured by means of WUSCT and the possible confound variables – intelligence and SES. This model showed significant results for SES (measured as family leader's education) and ego, while controlling for age and gender. Post-hoc tests revealed that individuals who came from highly educated families (father education classified as either Master level or PhD/Juris Doctor/MD) were at higher ego stages than the rest. ACT scores, used as a proxy for intelligence in this study, did not have a significant relationship with ego. Gender had a significant effect: post-hoc contrasts revealed

that, on average, female subjects had significantly higher ego stages than male subjects. This is consistent with other findings in the ego development (e.g., Loevinger, et al., 1985; Redmore, 1983), and is explained through the somewhat lower age of maturation for females. Thus, overall, the WUSCT measure showed good discriminant validity in this study. This suggests that the lack of discriminant validity for the objective measure of ego development is not due to the sample and that refinements of the measure are necessary before it can be used reliably as an alternative for the WUSCT.

--- Insert Table 5 here ---

I proceeded next to test the predictive ability of ego in relation to the two proactive behaviors measured in this study: voice behavior and performance information seeking behavior. I expected that ego level will predict voice behavior while controlling for proactive personality, Big-5 personality traits, and social desirability. I tested this hypothesis by means of multivariate analysis of covariance, with ego as a class variable first. A model including all covariates and their interaction terms with ego was first ran to ensure the assumption of homogeneity of regression slopes was met. This model revealed a significant interaction between ego and neuroticism. I proceeded with the more parsimonious model that included all covariates and the significant interaction term with neuroticism, and performed post-hoc tests to interpret this interaction. The post-hoc tests estimated mean differences between ego stages at average, high (i.e., plus one

standard deviation), and low (i.e., minus one standard deviation) neuroticism levels. Model results are reported in table 6 (all post-hoc tests are included in Appendix 2).

--- Insert Table 6 here ---

The model accounted for about 33% of the variance in voice behavior. Proactive personality and Extraversion both predicted voice behavior positively. Agreeableness was negatively related to voice behavior. These results are consistent with findings from the LePine and Van Dyne (2001) study, with the exception that Conscientiousness did not predict voice behavior in the current study. Consistency with previous findings gives more credibility to the remaining findings. Ego and its interaction with Neuroticism accounted for comparable proportions of variance as the other predictors of voice behavior.

However, these effects were localized exclusively in the lower, Pre-dependent ego stages, as post-hoc tests revealed. More specifically, for Impulsive individuals Neuroticism had a negative effect on voice, such that moderately and highly neurotic individuals engaged in voice behaviors less frequently than individuals at higher ego stages. However, Impulsive individuals that were low on neuroticism did not differ significantly from low neurotics at higher stages in terms of the frequency of their voice behavior. In effect, this means that low neurotics were able to compensate for the disadvantage that may be derived from their lower ego stage, in terms of proactivity. This effect was reversed at the next ego stage – Self-protective. Low and moderately neurotic and self-protective individuals

engaged in voice behaviors at a significantly lower rate than their higher ego counterparts. The advantage of higher ego was lost, however, for individuals who were highly neurotic. Beyond the pre-dependent stages, neuroticism did no longer interact with ego to predict voice behavior. Thus, there was only modest support for the validity of ego measured through the sentence completion test as a predictor of voice behavior. Hypothesis 1a was rejected, as it did not predict an interaction effect.

The same model was then tested using the objective measure of ego as a predictor in a multivariate regression model. To preserve the conditions of the analysis of covariance model as much as possible, interaction terms between ego and the other predictors were constructed and included in an initial run. However, none of these interactions were significant and were subsequently dropped from the analysis. This model explained approximately 20% of the variance in voice behavior. Table 7 reports the result of this multivariate regression model.

--- Insert Table 7 here ---

As it can be seen above, Proactive Personality, Extraversion and Agreeableness remain significant predictors in this model. However, ego was no longer a significant predictor of Voice. Thus, hypothesis 1b was rejected. Taken together with the findings from the analysis of covariance, this study provides modest evidence of criterion validity for ego as a predictor of voice behavior, but only when measured with the WUSCT and only in interaction with Neuroticism.

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I ran similar analyses to test the second hypothesis. A multivariate ANCOVA model tested the relationship of ego, personality variables and social desirability with performance information seeking criterion. To test for homogeneity of regression slopes across the different stages of ego, all interactions were initially included in the model. Only the interaction with neuroticism showed a significant effect. The more parsimonious model including only this interaction is analyzed henceforth. Overall, the model explained around 23% of the variance in performance information seeking behavior (see table 8). Extraversion positively predicted information seeking, while openness to experience had a significant but negative relationship with the criterion. With the exception of the significant interaction between ego and neuroticism, no other predictors showed a significant relationship to performance seeking behavior.

--- Insert Table 8 here ---

Post-hoc tests were examined to see if there was support for the expectation that performance information seeking behavior decreases from Dependent to Independent stages. A comparison of the average effect of Dependent stages interacting with neuroticism and the average effect of Independent stages interacting with neuroticism revealed no significant differences. More refined tests were then performed, comparing each two stages in the scale. Four comparisons revealed significant differences in the proactive behavior. Two of these comparisons referred to differences between the Self-protective stage and the Conformist and Conscientious stages respectively. Highly neurotic individuals at

the Self-protective (stage 3) stage were found to engage in more information seeking behavior than both Conformist (stage 4) and Conscientious (stage 6) individuals. They did not, however, differ significantly from Self-aware (stage 5) or Individualistic (stage 7). This may be explained with the preoccupation of self-protective individuals to stay out of trouble. This finding, however, is outside the scope of hypothesis 2a, as stage 3 is a Pre-Dependent stage.

A third significant comparison referred to differences between the two Dependent stages: moderately and highly neurotic Conformist engaged in performance information seeking behaviors less frequently than their Self-aware counterpart. The explanation may lie with the fact that, while individuals at both these stages may be preoccupied with how others see them, the Self-aware individuals are also increasingly preoccupied with individual opportunities and goals. Thus, Self-aware individuals have an extra incentive to ask for performance information, absent the internal standards to judge performance on their own that is available to higher ego stages. This incentive, however, is strong enough only for moderately and highly neurotic self-aware individuals. This is not surprising, as neurotic individuals are expected to experience more anxiety, which should lead them to seek out more information to minimize uncertainty. While interesting in its own, this finding is also outside the scope of the hypothesized relationship.

The fourth and final significant contrast compares Self-aware (stage 5) individuals with Conscientious (stage 6) individuals. This provides a partial test of the hypothesis because Self-aware is a dependent stage, while Conscientious is an

Independent stage. Moderately or highly neurotic individuals at the Self-aware stage engaged in performance seeking behavior significantly more often than their counterparts at the Conscientious stage. There was no significant difference for low neurotics. However, this pattern of results was not apparent in any other comparison between Dependent and Independent stages. This finding provides some modest criterion validity for ego, when interacting with Neuroticism. Nevertheless, hypothesis 2a was rejected, as it predicted simple effect of ego.

The same model was tested again using the objective measure for ego. This model explained only about 7% of the variance in performance information seeking behavior. While extraversion and openness remained significant predictors of the proactive behavior, neither ego nor any of its interactions with other predictors were significant. Thus, hypothesis 2b was rejected.

DISCUSSION

This study is the first to attempt the development of an objective test of ego development based on the WUSCT. The objective measured showed moderate convergent validity with the existing instrument. However, tests of discriminant validity were less successful. The sentence completion test performed closer to expectation when it came to relationships with known constructs, as was evident from the correlation table and from subsequent analyses. Moreover, the two new criteria tested in this study were better predicted by ego measured with the sentence completion test. While further refinements are needed before the new measure can reliably be used in research, the results of this study are encouraging. The new

measure compares favorably in terms of parsimony with both the WUSCT and with other personality measures. Importantly, the new measure distinguished between the broader Dependent and Independent categories, where the majority of working adults are found. Thus, the degree of applicability of the new measure to different research agendas is potentially large.

These results prompt inquiry on the causes that may have led to less than desirable validity for this incipient version of the objective test. An evident source of error was the failure to include test items for Pre-Dependent ego stages. It was assumed before the start of data collection that the great majority of students would score at level 4 or above, thus limiting the need to include Pre-dependent items. Further studies should incorporate items for the Self-protective stage at the minimum, since this stage was well represented in this sample (17%). A second possible source of error may have been the decision to pick items based on their frequency of appearance in previous studies. The rationale for this criterion of selection was that a larger percentage of respondents were expected to understand and relate to such. However, this may have had the unintended consequence respondents also more easily identifying with responses at ego stages higher than their own. A more diversified set of items may be warranted in future studies. Third, the sample and method used may have limited somewhat the ability to capture the relationship between ego and proactive behaviors. An employee sample and a non-self-report measure of proactivity would benefit future studies. In a classroom setting the opportunity to display proactive behaviors may be more

limited than in a real work situation. For example, students often times receive feedback on assignments that precludes the need to inquire on how well they are doing and where they need to improve.

Another source of error may have been the degree of similarity between the answer choices at different stages. The WUSCT manual provides multiple themes of answers for each item, based on previous research. For example, for the item 1-"When a child will not join in group activities…", many responses fall in the "Causes" category – i.e., the respondent provides an explanation why the child will not join –or the "Interventions" category – i.e., the respondent suggests what should be done to remedy the situation. When constructing the objective instrument, answers choices within each forced-choice item were selected from the same broader category of answers, so as to make them comparable on content. A consequence of this choice is that many items are fairly similar, with the potential of reducing the power to discriminate between the different stages. While efforts to keep items comparable should still be made, future studies should perhaps employ a more diverse pool of responses from each stage.

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ANNEXURES

Essay 2: Tables

Table 1: Stages of Ego Development

Ego Stage	Character development	Interpersonal Style	Conscious preoccupation	Cognitive Style
Impulsive (E2)	Impulsive, fear of retaliation; good and bad seen in terms of how it affects the self; dichotomous good/bad, nice/mean	Receiving, dependent, exploitive	Bodily feelings, especially sexual and aggressive	Stereotyping, conceptual confusion, no sense of psychological causation
Self-Protective (E3)	Fear of being caught, externalizing blame, opportunistic	Wary, manipulative, exploitive	Self-protection, avoiding trouble, wishes, things, advantage, control	
Conformist (E4)	Conformity to external rules, shame, guilt for breaking rules	Belonging, superficial niceness	Appearance, social acceptability, banal feelings, behavior	Conceptual simplicity, "black and white" thinking,, stereotypes, clichés,
Self-Aware (E5)	Differentiation of norms, goals.	Aware of self in relation to group, helping.	Adjustment, problems, reasons, opportunities (vague), ; banal level reflections on life issues: God, death, relationships, health	Multiplicity
Conscientious (E6)	Self-evaluated standards, self-criticism, guilt for consequences, long-term goals and ideals	Intensive, responsible, mutual, concern for communication.	Differentiated feelings, motives for behavior, self-respect, achievements, traits, expression.	Conceptual complexity can see patterns, can see a broader perspective.
Individualistic (E7)	*Add:* Respect for individuality.	*Add:* Concern for emotional dependence	*Add:* Development, social problems, differentiation of inner life from outer	*Add:* Distinction of process and outcome.
Autonomous (E8)	*Add:* coping with conflicting inner needs, tolerance.	*Add:* Respect for autonomy, interdependence.	Vividly conveyed feelings, integration of physiological and psychological, psychological causation of behavior, role conception	Increased conceptual complexity, complex patterns, toleration for ambiguity, broad scope, objectivity
Integrated (E9)	*Add:* Reconciling inner conflicts, renunciation of unattainable.	Add: Cherishing of individuality	Add: Identity	

Adapted from Loevinger and Blasi (1976).

Table 2: Distribution of Ego Stages in the Sample

EGO Stages Frequencies		
EGO Stage	Frequency	Percent
E2-Impulsive	3	1.80
E3-Self-protective	29	17.37
E4-Conformist	28	16.77
E5-Self-aware	62	37.13
E6-Conscientious	35	20.96
E7-Individualistic	10	5.99

Table 3: Intercorrelations of Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1-EGO (WUSCT)	1														
2-EGO (Objective)	0.41	1													
3-Social Desirability	-0.11	-0.04	(.61)												
4-Proactive Personality	-0.07	-0.02	0.09	(.89)											
5-Neuroticism	0.01	0.03	-0.13	-0.12	(.83)										
6-Extraversion	0.06	-0.02	-0.01	0.64	-0.17	(.87)									
7-Conscientiousness	0.02	0.19	0.03	0.64	-0.09	0.46	(.85)								
8-Agreeableness	0.14	0.13	0.04	0.41	0.10	0.44	0.42	(.74)							
9-Openness	0.13	0.26	0.06	0.45	0.20	0.34	0.38	0.55	(.76)						
10-Voice Behavior	0.08	0.00	0.17	0.37	-0.18	0.33	0.24	0.00	0.07	(.83)					
11-Performance Information Seeking	-0.15	-0.08	-0.03	0.11	-0.09	0.15	0.02	-0.15	-0.18	0.14	(.81)				
12-Intelligence (ACT score)	-0.03	0.10	-0.13	-0.03	-0.05	0.03	0.04	-0.04	-0.1	0.11	0.01	1			
13-Age	0.08	-0.09	0.21	0.03	-0.07	-0.03	-0.02	0.05	0.15	0.01	-0.05	-0.52	1		
14-Gender	-0.12	-0.16	-0.02	0.01	-0.35	-0.11	-0.11	-0.26	-0.17	0.05	0.04	-0.03	0.17	1	
15-SES	0.12	0.01	-0.16	-0.10	0.01	0.06	-0.08	-0.07	-0.05	0.01	0.00	0.02	-0.21	-0.05	1

Correlations of .15 and above are significant at p<.05

Table 4: Convergent Validity for the Objective Measure of Ego Development

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F
Model	14	1.142434	0.081602	3.01	0.0004
Error	152	4.127175	0.027152		
Corrected Total	166	5.269609			

R-Square	Coeff Var	Root MSE	Ego (OBJ) Mean
0.216797	2.959307	0.16478	5.568197

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F
Ego (WUSCT)	5	0.757559	0.151512	5.58	<.0001
SES	6	0.06108	0.01018	0.37	0.89
Intelligence (ACT)	1	0.023065	0.023065	0.85	0.36
Age	1	0.025933	0.025933	0.96	0.33
Gender	1	0.055936	0.055936	2.06	0.15

Table 5: Ego (WUSCT) discriminant validity

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F
Model	9	25.91	2.88	2.15	0.03
Error	157	210.51	1.34		
Corrected Total	166	236.42			

R-Square	Coeff Var	Root MSE	Ego (WUSCT) Mean
0.109598	24.32	1.16	4.76

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F
SES	6	20.38	3.40	2.53	0.02
Intelligence (ACT)	1	0.23	0.23	0.17	0.68
Age	1	3.78	3.78	2.82	0.09
Gender	1	5.34	5.34	3.98	0.05

Table 6: Overall Model for Ego (WUSCT) and Voice Behavior

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F
Model	17	60.62	3.57	4.36	<.0001
Error	149	121.81	0.82		
Corrected Total	166	182.44			

R-Square		Coeff Var	Root MSE	VOICE Mean
0.33		19.13	0.90	4.73

Table 6: Continued

Detailed Model Parameters for Ego (WUSCT) and Voice Behavior

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F	Total Variation Accounted For				Partial Variation Accounted For			
						Semi-partial η2	Semi-partial ω2	Conservative 95% Confidence Limits		Partial η2	Partial ω2	95% Confidence Limits	
EGO	5	12.88	2.58	3.15	0.01	0.07	0.05	0.00	0.13	0.10	0.06	0.01	0.16
Social Desirability	1	1.68	1.68	2.06	0.15	0.01	0.00	0.00	0.06	0.01	0.01	0.00	0.06
Proactive Personality	1	9.84	9.84	12.04	0.00	0.05	0.05	0.01	0.13	0.07	0.06	0.01	0.15
Extraversion	1	5.22	5.22	6.39	0.01	0.03	0.02	0.00	0.09	0.04	0.03	0.00	0.11
Agreeable.	1	9.39	9.39	11.49	0.00	0.05	0.05	0.01	0.13	0.07	0.06	0.01	0.15
Neuroticism	1	1.54	1.54	1.89	0.17	0.01	0.00	0.00	0.06	0.01	0.01	0.00	0.06
Openness	1	0.18	0.18	0.22	0.64	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03
Conscientious	1	0.76	0.76	0.93	0.34	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.05
Neur*Ego	5	11.88	2.38	2.91	0.02	0.07	0.04	0.00	0.12	0.09	0.05	0.00	0.15

Table 7: Ego (Objective) and Voice Behavior

	Analysis of Variance				
Source	Df	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	43.38	5.42	6.16	<.0001
Error	158	139.06	0.88		
Corrected Total	166	182.44			

Root MSE	0.94	R-Square	0.23
Dependent Mean	4.73	Adj R-Sq	0.20
Coeff Var	19.85		

Table 7: Continued

Detailed Model Parameters for Ego (Objective) and Voice Behavior

Variable	Df	Parameter		t Value	Pr > |t|	Standardized
		Estimate	SE			Estimate
Intercept	1	0.59	2.50	0.24	0.81	0.00
EGO (Objective)	1	0.49	0.45	1.09	0.28	0.08
Social Desirability	1	0.08	0.03	2.45	0.02	0.17
Proactive Personality	1	0.29	0.11	2.63	0.01	0.29
Extraversion	1	0.34	0.13	2.57	0.01	0.25
Agreeableness	1	-0.39	0.15	-2.54	0.01	-0.23
Neuroticism	1	-0.07	0.12	-0.62	0.54	-0.05
Conscientiousness	1	0.05	0.14	0.37	0.71	0.04
Openness to experience	1	-0.09	0.14	-0.64	0.53	-0.06

Table 8: Ego (WUSCT) and Performance Information Seeking Behavior

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F
Model	17	48.70	2.86	2.68	0.0007
Error	149	159.05	1.07		
Corrected Total	166	207.76			

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F	Total Variation Accounted For				Partial Variation Accounted For			
						Semi-partial η2	Semi-partial ω2	Conservative 95% Confidence Limits		Partial η2	Partial ω2	95% Confidence Limits	
EGO	5	9.98	2.00	1.87	0.10	0.05	0.02	0.00	0.10	0.06	0.03	0.00	0.11
Social Desirability	1	0.08	0.08	0.07	0.78	0.00	0.00	0.00	0.02	0.00	-0.01	0.00	0.03
Proactive Pers.	1	3.24	3.24	3.04	0.08	0.02	0.01	0.00	0.07	0.02	0.01	0.00	0.08
Extraversion	1	5.47	5.47	5.13	0.03	0.03	0.02	0.00	0.09	0.03	0.02	0.00	0.10
Agreeableness	1	2.69	2.69	2.52	0.11	0.01	0.01	0.00	0.07	0.02	0.01	0.00	0.07
Neuroticism	1	0.36	0.36	0.34	0.56	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.04
Conscientiousness	1	0.08	0.08	0.07	0.79	0.00	0.00	0.00	0.02	0.00	-0.01	0.00	0.03
Openness	1	6.33	6.33	5.93	0.02	0.03	0.03	0.00	0.10	0.04	0.03	0.00	0.10
Neur.*EGO	5	14.75	2.95	2.76	0.02	0.07	0.05	0.00	0.13	0.08	0.05	0.00	0.14

APPENDIX 1: EGO AND VOICE BEHAVIORS – POST-HOC TESTS

Parameter	Estimate	SE	t Value	Pr > |t|
LOW Neuroticism 2 vs 3	-1.46	0.90	-1.62	0.11
MEDIAN Neuroticism 2 vs 3	0.96	0.62	1.56	0.12
HIGH Neuroticism 2 vs 3	3.39	1.32	2.57	0.01
LOW Neuroticism 2 vs 4	-0.26	0.88	-0.29	0.77
MEDIAN Neuroticism 2 vs 4	1.49	0.62	2.38	0.02
HIGH Neuroticism 2 vs 4	3.23	1.33	2.43	0.02
LOW Neuroticism 2 vs 5	-0.15	0.86	-0.17	0.86
MEDIAN Neuroticism 2 vs 5	1.56	0.61	2.56	0.01
HIGH Neuroticism 2 vs 5	3.26	1.30	2.50	0.01
LOW Neuroticism 2 vs 6	-0.34	0.87	-0.38	0.70
MEDIAN Neuroticism 2 vs 6	1.48	0.61	2.43	0.02
HIGH Neuroticism 2 vs 6	3.30	1.32	2.50	0.01
LOW Neuroticism 2 vs 7	-0.64	0.96	-0.67	0.51
MEDIAN Neuroticism 2 vs 7	1.54	0.67	2.31	0.02
HIGH Neuroticism 2 vs 7	3.73	1.35	2.77	0.01
LOW Neuroticism 3 vs 4	1.20	0.39	3.06	0.00
MEDIAN Neuroticism 3 vs 4	0.52	0.25	2.06	0.04
HIGH Neuroticism 3 vs 4	-0.16	0.38	-0.41	0.68
LOW Neuroticism 3 vs 5	1.31	0.34	3.80	0.00
MEDIAN Neuroticism 3 vs 5	0.59	0.21	2.80	0.01
HIGH Neuroticism 3 vs 5	-0.13	0.28	-0.45	0.65
LOW Neuroticism 3 vs 6	1.12	0.39	2.91	0.00
MEDIAN Neuroticism 3 vs 6	0.52	0.24	2.15	0.03
HIGH Neuroticism 3 vs 6	-0.09	0.34	-0.26	0.80
LOW Neuroticism 3 vs 7	0.82	0.54	1.51	0.13
MEDIAN Neuroticism 3 vs 7	0.58	0.35	1.63	0.11
HIGH Neuroticism 3 vs 7	0.34	0.40	0.85	0.39
LOW Neuroticism 4 vs 5	0.11	0.28	0.39	0.70
MEDIAN Neuroticism 4 vs 5	0.07	0.22	0.33	0.74
HIGH Neuroticism 4 vs 5	0.03	0.34	0.10	0.92
LOW Neuroticism 4 vs 6	-0.08	0.35	-0.22	0.82
MEDIAN Neuroticism 4 vs 6	0.00	0.25	-0.01	0.99

HIGH Neuroticism 4 vs 6	0.07	0.40	0.18	0.86
LOW Neuroticism 4 vs 7	-0.49	0.49	-1.01	0.31
MEDIAN Neuroticism 4 vs 7	-0.01	0.33	-0.04	0.96
HIGH Neuroticism 4 vs 7	0.46	0.37	1.26	0.21
LOW Neuroticism 5 vs 6	-0.19	0.29	-0.65	0.52
MEDIAN Neuroticism 5 vs 6	-0.07	0.20	-0.37	0.71
HIGH Neuroticism 5 vs 6	0.04	0.29	0.13	0.90
LOW Neuroticism 5 vs 7	-0.49	0.49	-1.01	0.31
MEDIAN Neuroticism 5 vs 7	-0.01	0.33	-0.04	0.96
HIGH Neuroticism 5 vs 7	0.46	0.37	1.26	0.21
LOW Neuroticism 6 vs 7	-0.31	0.52	-0.59	0.56
MEDIAN Neuroticism 6 vs 7	0.06	0.35	0.17	0.86
HIGH Neuroticism 6 vs 7	0.43	0.41	1.05	0.30

APPENDIX 2: OBJECTIVE MEASURE OF EGO DEVELOPMENT

When a child will not join in group activities…	
E6: She is either shy or self-conscious and feels better isolated.	E7: It may be because of reasons such as self-esteem, peer pressures, security.

Raising a family…	
E4: Takes a lot of compromising.	E6: Is difficult but challenging.

A man's job…	
E4: Is very important to him.	E5: Should be equal to a woman's job

Being with other people	
E4: Is a nice experience.	E5: Is both fun and necessary.
E4: Makes anyone feel good.	E6: Is good for a person's wellbeing.
E4: Is fun if you know them.	E7: Is comforting when you know and love them well.
E5: Has its advantages and disadvantages.	E7: Can be tiring or very satisfying.
E6: Creates a feeling of unity and friendship.	E7: Is fun if it is balanced with alone time.

Education…	
E5: Is a must if you have high goals.	E7: Is necessary if you wish to live on your own.

When people are helpless…	
E6: It's because they have given up.	E7: Part of it is their perception; the rest is circumstantial.

A man feels good when…	
E4: He can accomplish what he wants.	E5: He proves himself.
E4: He knows there is someone waiting for him at home.	E7: He finds true companionship.
E5: He is loved at home and happy at work.	E6: He knows his wife is his partner and not his obstacle.

Rules are...	
E4: Essential.	E6: Necessary to maintain order.
E4: To be gotten around.	E7: Essential in an organized society, but sometimes too restrictive.
E5: Sometimes broken but help guide us.	E6: Often not as rigid as they may first appear.

A woman feels good when...	
E4: She looks good.	E5: She is noticed.
E5: She is treated like a lady.	E6: She is loved and respected by friends and family.

ESSAY 3: THE EFFECT OF EGO DEVELOPMENT ORDER ON LMX

Abstract

This study is one of the first to apply a constructive- developmental approach to the study of work relationships. It is hypothesized that a leader-follower relationship is circumscribed by the ego development (Loevinger & Blasi, 1976) stage of individuals. The study finds that individuals place different emphasis on the different components of a leader-member relationship, depending on their developmental stage. Some evidence is found for the expectation that higher quality relationships will develop between individuals at similar developmental stages.

As early as the late 1970s researchers have argued that if we are to understand management phenomena such as leadership, problem solving, or relationship management, we need to look deeper into the very way that managers construct meaning out of the surrounding reality (Weick, 1979). Recently, McCauley and colleagues (McCauley, Drath, Palus, O'connor, & Baker, 2006) have argued that constructive-developmental theories may provide fecund opportunities for advancing leadership research through the unique insights that they offer for answering the question that Weick asked more than 40 years ago. Constructive-developmental theories suggest that individuals go through a sequence of developmental stages, each with a characteristics sense-making system that regulates how individuals understand themselves and their experiences. Differences in these sense-making systems may explain why some are better able than others to lead effectively and to develop effective work relationships.

In this paper I explore the role of sense-making systems in the understanding and development of social exchanges between supervisors and subordinates in a workplace. Initially developed by Graen and colleagues (Graen, Novak, & Sommerkamp, 1982) based on earlier work on the "vertical dyad linkage" theory of leadership (e.g., Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975) the leader-member exchange theory of leadership has produce an abundance of research. Leader-member exchange (LMX) is defined as the quality of the interpersonal social-exchange between a subordinate and his/her direct supervisor (Liden & Maslyn, 1998). Researchers have identified a number of

positive outcomes of high LMX relationships, including an increased willingness of subordinates to seek negative feedback from their supervisors (Chen, Lam, & Zhong, 2007), increased likelihood that subordinates will respond positively to supervisors' influence tactics (Furst & Cable, 2008), and increased likelihood that subordinates will perform organizational citizenship behaviors (Henderson, Wayne, Shore, Bommer, & Tetrick, 2008; Ilies, Nahrgang, & Morgeson, 2007). Given the organizational benefits of high LMX relationships, it is not surprising that researchers have devoted attention the question of why supervisors develop high LMX relationships with some subordinates but not with others. Several explanations have been suggested, including effort invested in the relationship (Maslyn & Uhl-Bien, 2001), mutual expectations, and perceived similarity and liking (Liden, Wayne, & Stilwell, 1993), similarity in personality (Bauer & Green, 1996), and implicit theories of performance (Engle & Lord, 1997) and of leadership (Epitropaki & Martin, 2005).

This study adds to this body of evidence by investigating the role of meaning-making systems on the development of LMX relationships. I suggest that individuals emphasize different components of exchange depending on their meaning-making system. Further, I hypothesize that this different emphasis will, to some extent, influence the quality of relationships between individuals with different meaning. This study is one of the first to apply an adult developmental theory to the study of leader-member exchange. In doing so, it makes at least two important contributions to the literature. First, it provides a more complete

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understanding of the way relationships develop. Adult development theories provide unique insight into how individuals understand relationships, what type of relationship they prefer, and what kind of relationship issues preoccupy them. Thus, they provide a richer picture of the work relationship, going beyond what may be explained through personality similarities or other similarity-attraction paradigms. Second, developmental stages are a dynamic predictor in the sense that individuals can move to more complex developmental stages throughout their life, affecting the way relationships are approached and understood over time. Changes in the developmental stage may explain why individuals may change their expectations of what constitutes a positive exchange relationship over time.

DEVELOPMENTAL STAGES AND LMX DIMESIONS

The Conceptualization of LMX

While there is agreement on the nature of the LMX construct – it captures the quality of exchange relationships between supervisor and subordinate – previous research indicates much more variability in defining the content of these exchanges. In their review of past research, Schriesheim, Castro and Cogliser (1999) found as many as 35 different dimensions, six of which surfaced in most studies: attention, latitude, liking, loyalty, mutual support and trust. Nevertheless, some posit that these dimensions are so highly correlated that in effect a single measure of LMX can more efficiently tap into all of them (Graen & Uhl-Bien, 1995). While this argument is not without merit, evidence exists that dimensions, however inter-correlated, do indeed predict relevant outcomes in different ways.

For example, Greguras and Ford (2006) found that the affective and interpersonal dimensions more strongly predicted satisfaction with supervisor than the contribution to the exchange. On the other hand, effort and resources dimensions were more important predictors of the subordinate's job involvement and organizational commitment. More interestingly, Maslyn and Uhl-Bien (2001) found that subordinates and supervisors emphasized the interpersonal and the contribution aspects of the relationship in somewhat different ways: supervisors paid more attention to the contribution, while subordinates to the interpersonal dimensions.

In this same line of thought, Zhou and Schriesheim (2009) proposed that supervisors and subordinates may actually conceptualize LMX in different ways, emphasizing either the task or the social elements of the relationship. In line with this research, the current study looks into what may explain different conceptualizations of LMX across individuals, regardless of their roles as subordinates or supervisors. Up to date the more commonly employed multi-dimensional conceptualization appears to be Liden and Maslyn's (1998) four-dimension LMX definition: affect, loyalty, contribution and professional respect. These dimensions capture respectively the mutual affection exiting between the two parties, the degree to which the parties publicly express support for one another, the degree to which the parties contribute to the exchange, and the degree to which the parties respect and admire each other's professional capabilities. I will henceforth rely on this conceptualization to present my arguments.

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EGO DEVELOPMENT – A CONSTRUCTIVE-DEVELOPMENTAL THEORY

Constructive-developmental theory (CDT) is a stage theory of adult development that endeavours to explain how an individual's sense of understanding of the self and of the world grows and becomes more elaborate in time. CDT focuses on two primary aspects of development: (a) the sense-making system that regulates how people make sense of, and assign meaning to themselves and the surrounding world (called developmental orders, or stages), and (b) how these meaning-making systems are constructed and reconstructed over time (called developmental movement) (McCauley, et al., 2006). There are a number of constructive-developmental theories that define the sense-making systems and their sequence of development in more or less similar ways (McCauley, et al., 2006), four of which have made a more significant impact on the management literature: Kegan's orders of conscientiousness (e.g., Kegan, 1980), Kholberg's stages of cognitive moral development (e.g., Kohlberg, 1987), and Lovinger's stages of ego development (Loevinger & Blasi, 1976), as well as the closely related action-logic stages by Torbert (Torbert & Cook-Greuter, 2004).

Loevinger's conceptualization of the sense-making system – called ego development – is the broader of the four; Loevinger defines ego as a "master trait", subsuming other forms of development such as moral development intellectual development (Perry, 1970), moral development (Kohlberg, 1987), and interpersonal development (Selman, 1980). The second aspect of development – developmental movement – is addressed in Loevinger's theory through a hierarchy

of stages that an individual may progress through in a determined sequence. At each stage the meaning system is redefined base on four coordinates of development: the cognitive style, the interpersonal style, the character development, and the conscious preoccupations of the individual. *Cognitive style* describes the cognitive development of the individual. Higher ego stages are characterized by increased conceptual complexity and more tolerance for ambiguity. *Interpersonal style* governs the way individuals understand relationships with others, as well as the preference of individuals for different types of relationships. For example, respect for the autonomy of others is a characteristic of higher ego stages, while exploitive and manipulative relationships are a sign of lower ego stages. *Character development* defines the types of moral concerns individuals have and how individuals make moral decisions and avoid giving in to their impulses.

At lower stages the individual is more impulsive and acts morally out of fear of retaliation. At higher stages individuals have a greater capacity for self-control and have developed internalized moral standards. *Conscious preoccupations* are the dominant issues that influence an individual's conscious thinking and behavior. Lower stages individuals are preoccupied with self-protection; at higher stages individuals may be more concerned with obeying rules or being responsible. Concerns for independence and individuality are the hallmark of the highest stages of development. Loevinger provides evidence and descriptions for nine stages of ego development (Loevinger & Blasi, 1976). The first stage –

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called Pre-social and symbiotic – refers to the earliest stage of development when the infant is not yet differentiating from him/herself and the mother. The second and third stages, called Impulsive and Self-Protective, and the last two stages, Autonomous and Integrated, are quite rare in adult populations. In fact, studies find that less than 7% of the adult population ever reaches the highest two stages meaning-system development, while fewer than 5% of adults never develop past the first two stages (Cook-Greuter, 2004). Thus, the majority of the adult population ranges from ego stage four – Conformist – to ego stage seven – Individualistic.

A summary of these stages along with their characteristics across the four interconnected domains of development is presented in Table 1. For simplicity, I will refer to the different ego stages using the simpler typology employed by McCauley et al. (2006), which defines ego stages two and three as Pre-Dependent, ego stages four and five as Dependent, ego stages six and seven as Independent, and ego stages eight and nine as Inter-Independent. The rationale for the naming lies in the source of understanding of the self and of the world. Dependent individuals are called as such because they rely extensively on external sources for defining themselves and themselves and understanding their experiences. Independent individuals have a more internalized set of values and a more self-developed standard of judgment. Inter-Independent individuals are aware of the fact that who they are is as much a function of their own self and the environment with which they interact. The little headway that constructive-developmental

theories have made in the mainstream management literature has been largely based on the study of the Dependent and Independent stages. Pre-dependent and Inter-Independent individuals are rare in the workplace because most people "mature" past the former stages by the time they are fully employed, but very few actually develop to the latter. For these reasons, I will focus on the Dependent and Independent stages of development for hypothesis building and testing.

--- Insert Table 1 Here ---

Ego Development and Work Relationships

Theoretical arguments and empirical evidence from both the constructive-developmental literature and the LMX literature suggest that ego development and LMX may be related. For example studies have found significant effects of developmental stages on how individuals lead or expect others to lead (McCauley et al., 2006). At lower orders, individuals expect more clear guidance and structure from leaders, whereas at higher stages individuals expect more autonomy (Cook-Greuter, 2004). On the other hand, in the LMX literature expectations with regard to what a leader or a follower should and should not be are also related to the quality of relationship between the two (e.g., Engle & Lord, 1997; Epitropaki & Martin, 2005). Thus, if ego development determines expectations about leaders, and these expectations are related to LMX, then ego development should also be related to LMX. There is also evidence that individuals may emphasize different aspects of the relationship, depending on their role in the dyad: leaders tend to

emphasize contribution while followers tend to emphasize affect and loyalty (e.g., Maslyn & Uhl-Bien, 2001; Zhou & Schriesheim, 2009). In essence, cognitive difference – manifested as different implicit theories of performance or leadership – may determine what behaviors are expected and what behaviors are exhibited, thus influencing LMX, while role differences determine what components of the relationship are emphasized. The question of whether individual differences in cognitive style may also influence what dimensions of LMX are emphasized has not yet been addressed in research, although it is quite plausible that role differences are not the only determinant of relationship preferences. Investigating these alternative explanations may provide a more complete picture of what really matters in a LMX relationship.

When examining the ego construct in more detail, the possibility that ego is related to preference for certain components of the LMX relationship becomes more apparent. The conscious preoccupation and the interpersonal styles of individuals at different stages are particular telling points. For example, dependent individuals are more preoccupied with social acceptability, appearance, and relationships than those at higher stages (Loevinger & Blasi, 1976, p. 24). These points of interest are more closely related to the affect and loyalty components of LMX, than to the contribution and respect dimensions. In fact, research has found that the loyalty conflicts that arise when individuals fulfill boundary-spanning roles represent a significantly greater challenge for dependent-stage individuals then for independent individuals (Hasegawa, 2004). Similarly, Van Velsor and Drath (2004)

showed that dependent individuals found it more difficult than independent individuals to express disagreement with supervisors. In contrast, individuals at the independent stage are more preoccupied with self-respect, achievement, and development. Thus, they are more likely to prefer a dyadic partners from whom they believe they have a lot to learn (i.e., they emphasize the professional respect dimension) or whom helps them achieve their objectives by providing support and resources (i.e., they emphasize the contribution dimension). Some indirect evidence supports this assertion. For example, Hirsch (1988) found that dependent-stage entrepreneurs were more likely to want to be involved in every aspect of the day-to-day operations of the business, while independent-stage entrepreneurs delegated and relied more extensively on subordinates. This suggests that the respect leaders have for their followers' professional abilities may play an increased role for independent-stage leaders than for dependent leaders.

In terms of their interpersonal style, dependent individuals are driven to a greater extent by the need to belong, to be accepted in a group and to be seen as a helpful and loyal member (Loevinger & Blasi, 1976). In contrast, independent-stage individuals are more likely to rise above their loyalties to others in order to meet organizational goals (Kuhnert & Lewis, 1987). This suggests a greater emphasis on the contribution dimension of the LMX on the part of independent-stage individuals, and a greater emphasis on the loyalty dimension for dependent-stage individuals. Independent individuals are more likely to show personal initiative and expect it from others (Cook-Greuter, 2004); thus, they are more likely

to value other individuals who are strong professionals and can demonstrate performance, rather than individuals who conform to group norms and are loyal to the leader. Taken together, the theoretical conceptualization of ego and the empirical findings on how developmental stages shape the individual's understanding of what is important in a work relationship suggest that dependent-stage individuals emphasize the loyalty and affect dimensions of LMX while independent individuals emphasize the contribution and professional respect dimensions of LMX.

Hypothesis 1a: The correlation between the Affect dimension of LMX and the one-dimensional measure of LMX will be stronger for Dependent individuals than for Independent individuals.

Hypothesis 1b: The correlation between the Loyalty dimension of LMX and the one-dimensional measure of LMX will be stronger for Dependent individuals than for Independent individuals.

Hypothesis 1c: The correlation between the Contribution dimension of LMX and the one-dimensional measure of LMX will be stronger for Independent individuals than for Dependent individuals.

Hypothesis 1d: The correlation between the Professional Respect dimension of LMX and the one-dimensional measure of LMX will be stronger for Independent individuals than for Dependent individuals.

It follows from the above that individuals may develop better relationships with other individuals who are at the same level of ego development, because they would tend to emphasize similar aspects of the relationship. The LMX literature offers evidence in support of the idea that similarity results in better relationships. For example perceived similarity between leaders and followers and the implicit theories of leadership and performance that followers and leaders possess are strong correlates of LMX (Liden, et al., 1993). Both leaders and members tend to

be attracted to and develop better LMX relationships with individuals who have similar attitudes and who behave in accordance to their implicit theories on performance (Engle & Lord, 1997). Similarly, Epitropaki and Martin (2005) suggested that followers developed higher LMX with leaders that were close to the ideal profile as defined by their implicit theories of leadership. In sum, both followers and leaders tend to develop higher LMX when their counterparts are perceived to be more like themselves or more like what they expect out of a prototypical leader (or follower). Drawing on this reasoning, I suggest that leaders will perceive better LMX with their followers, when followers behave according to the expectations that stem from the developmental order of the leaders. Similarly, when leaders behave in accordance with the expectations of their followers, followers will like their leaders more and perceive better LMX with their leaders.

> *Hypothesis 2: Leaders and followers perceive better LMX relationships with individuals at the same developmental order.*

Constructive-developmental theory suggests that individuals at higher orders can still display and understand the behaviours of lower orders, while the reverse is less likely (Cook-Greuter, 2004). For example, a study by Snell (1996) suggested that managers used a wide range of types of moral reasoning, not just their highest possible stage of moral reasoning. Thus, it is possible for higher-order individuals to meet the expectations of lower order individuals, when they are able to discern these expectations and willing to conform to them. It then becomes a question of whether the individual is willing and capable of presenting himself or

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herself in ways that meet the expectations of the situation. Researchers refer to the propensity of individuals to manage impressions and positively influence others' evaluations of them through the term "self-monitoring" (Day, Shleicher, Unckless, & Hiller, 2002). Self-monitoring is a dimension of individual difference that captures the degree to which individuals *monitor* (observe, and regulate, and control) their self-image in social settings and interpersonal relationships (Snyder, 1974). Thus, self-monitors should be more able to act in accordance to the expectations derived from an individual's developmental order. Moreover, subordinates who are self-monitors should have additional incentives to meet concur with expectations of their supervisors. I thus expect that:

> *Hypothesis 3a: Leaders and followers at a given developmental order perceive better LMX relationships with higher order individuals who are also high self-monitors, than with higher order individuals who are low self-monitors.*

> *Hypothesis 3b: The moderating effect of self-monitoring on the developmental order – LMX relationship is stronger for followers that it is for leaders.*

METHODS AND RESULTS

Two separate studies were conducted to test the hypotheses proposed in this study. First, a student sample was collected to test Hypothesis 2 only. The participants were 225 students in an undergraduate management class at a mid-western university in the United States. A total of 167 students (74.22% response rate) provided complete responses to both surveys. Of these respondents, 43.7% were female; the average age of the respondents was 21.38 years. A second work sample consisting of supervisors and subordinates at three participating

organizations – a state department of health in the Midwestern United States, a large Midwestern public university, and a Midwestern hokey team – was collected to test all study hypotheses. All participants were white collar employees. A total of 105 individuals participated in the study. Fifteen were in supervisory roles and the rest of 90 in subordinate roles. Fifty-eight percent of participants were female. These two studies are described in more detail below.

Study 1: Procedure and Measures

Participating students were enrolled in a Principles of Management class. As part of the requirements of the class, they worked on team projects in teams of four to six students. Two surveys were administered one month apart. The Washington University Sentence Completion Test (WUSCT) developed by Loevinger and Wessler (1970), along with the 50-item International Personality Inventory Pool (e.g., Goldberg, et al., 2006) measure for the Big 5 personality traits were collected as part of the first survey. In addition to these personality items, I also collected demographic data (i.e., age, gender). Consistent with previous ego research on college students, the majority of subjects were at Dependent stages (approximately 51%) and at Independent stages (31%). A little more than 17% of subjects tested at Pre-Dependent stages. There were no students who tested at the Inter-Independent stages.

---Insert Table 2 Here ---

The second survey collected data on relationships. These student teams did not have a formally assigned leader; therefore, it was not feasible to use traditional measures of leader-member exchange such as the LMX7 scale (e.g., Graen & Uhl-Bien, 1995) or the LMX12 scale (e.g., Greguras & Ford, 2006). Instead a coworker exchange measure was created by adapting six of the items from the Graen and Uhl-Bien (1995) scale, similarly to the approach taken in Sherony and Green (2002). All measures had alpha levels above the .70.

---Insert Table 3 here---

Each team member was asked to provide coworker exchange ratings for all other members of the team. After deleting missing values from the dataset, a total of 418 dyads were left to test hypothesis 2, which suggested that at each ego stage individuals will develop better exchange relationship with other individuals at the same ego stage. Subsets of the dataset were created by filtering for each ego stage. Frequency analysis indicated that most individuals rated at ego stage 5 – Self-aware (a late dependent stage), resulting in a higher statistical power within this particular subset of the data, but lower power in the other subsets. Because of the non-independence issues that may bias the results (i.e., multiple individuals rate the same individual), SAS Proc Mixed was used to analyze these dyads. The nesting of the data was controlled for based on the unique study code of each individual. To test hypothesis 2, coworker exchange was regressed on the ego of the rater, while controlling for the gender and the personality traits of both the rater and the rated team-members. In addition, in order to account for potential interaction between

ego and personality variables, interaction terms were specified. No significant interactions were observed, so these additional terms were dropped to save degrees of freedom. Separate analyses were run on each subset of the data (i.e., for each ego stage of the rated peer).

Study 1: Results

--- Insert Table 4 Here ---

Omnibus tests supported an effect of ego only in the largest subset of the data numbering a total of 147 dyads. This subset corresponded to the modal ego stage in the sample: stage 5 – Self-aware. To test the hypothesis, estimates were calculated for the differences between coworker exchange scores of raters who were at the same stage as the peer being rated, and of raters who were at different stages than the coworker being rated. The estimates comparing the ratings of Self-aware (stage 5) individuals with the ratings of Impulsive (stage 2) and Individualistic (stage 7) were based on only 3 and 9 ratings respectively, and failed to reach significance. However, all other estimates were significant and in the predicted direction: Stage 5 coworkers received significantly higher ratings from stage five raters than from raters at stages 3, 4 and 6. Thus, hypothesis 2 was partially supported in this study.

--- Insert Table 5 Here ---

Study 2: Procedure and Measures

Two surveys were sent one month apart to all participants in the study. The first survey was identical to the one used in the student sample: it collected data on personality and ego development. The second survey consisted of measure of leaders-member exchange and self-monitoring. LMX data was collected from both subordinates and supervisors. All subordinates completed two measures of LMX: the LMX7 scale developed by Graen and Uhl-Bien (1995) and a 12-item LMX scale developed by Greguras and Ford (Greguras & Ford, 2006). The rationale for using two measures is that the former is a uni-dimensional measure of LMX while the latter is a multi-dimensional scale; this allows the test of Hypothesis 1 by checking whether correlations between the four dimension of LMX and the uni-dimensional measure are affected by the ego of the respondent. In order to reduce the respondent burden and ensure a satisfactory response rate, only the 12-item scale was sent with the supervisor survey. Self-monitoring was measured using the 13-item scale developed by Lennox and Wolfe (1984). All scales showed acceptable alpha levels with one exception. The scale for the Contribution dimension of LMX had an alpha level of .63 when reported from the subordinates. Its alpha level was above the .70 threshold when reported from the supervisor.

--- Insert Table 6 here ---

Compared to the student sample, in the employee sample there were more individuals at Independent stages (45% of the sample) and fewer at Dependent stages (40% of the all respondents). 10% of respondents tested at the Pre-Dependent stages. The remaining 5% tested at stage 8 – Autonomous – the first

Inter-Independent stage. Overall, this sample provided a broader range of ego level. Nevertheless, the sample was largely concentrated in the late Dependent and early Independent stages: stage 5 – Self-aware and stage 6 – Conscientious accounted for more than 66% of the sample. This results in very low frequency distributions for some Supervisor-Subordinate ego combinations, as seen below, and makes hypothesis testing for certain ego combinations difficult.

--- Insert Table 7 here ---

Study 2: Results

Hypotheses 1a-1d stated that individuals should emphasize the four LMX dimensions differently, depending on the individual's ego stage. To test these hypotheses I set up four regression models with each dimension of LMX as a predictor of the uni-dimensional measure, and ego of the respondent as a moderator of this relationship. To control for nesting, all models were run with SAS Proc Mixed. Support for these hypotheses is shown when ego significantly moderates the relationships between the dimensions of LMX and the uni-dimensional scale such that this relationship is stronger for Dependent individuals – in the case of Affect and Loyalty dimensions – and stronger for Independent individuals – in the case of Contribution and Professional Respect dimensions. Two of these models did not show a significant interaction between ego and the respective LMX dimension: there was no apparent effect of ego on the way individuals emphasize the Contribution and Affect dimension. Thus, hypotheses 1a and 1c were not

supported. Ego did moderate the relationship between the Loyalty and Professional Respect dimensions and the uni-dimensional LMX scale. Post-hoc test were run to interpret these interaction.

--- Insert Table 8 Here ---

LMX7 estimates were calculated for high and low levels (i.e., plus and minus one standard deviation from the mean) of the Loyalty dimensions for Dependent and Independent stages. The post-hoc test revealed that individuals at both Dependent stages experienced significantly lower total LMX than the individuals at the Conscientious stage (early Independent) when they reported low Loyalty, as evidenced from the positive differences between LMX reported at stage 6 and LMX reported at stages 4 and 5. Contrasts that compared the two Dependent stages to the other Independent stage (i.e., stage 7 – Individualistic) were not statistically significant. These finding provide partial support for hypothesis 1b.

I ran a similar analysis for the Professional Respect dimension of LMX. Three of the post-hoc tests revealed that compared to Dependent individuals, Independent individuals either reported significantly high total LMX when their Professional Respect score was also high, or significantly lower total LMX when their Professional Respect score was low. The contrast between Self-aware and the Conscientious stages was not significant. Overall, hypothesis 1d was supported.

--- Insert Table 9 Here ---

Hypothesis 2 stated that individuals will develop better LMX relationships with other individuals at the same ego stage as themselves. To test this hypothesis, similar analyses were performed on the employee sample as on the student sample. Supervisor and subordinate LMX were reported separately. Missing ego stage values for subordinates were replaced with the modal stage 5 (Self-aware). Due to low cell size for most of the Supervisor-Subordinate ego stage combinations, omnibus tests were significant only for LMX reported by supervisors at the Self-aware stage. Results are reported based on this model. LMX was regressed on subordinate ego stage, and on gender and personality traits of supervisor and subordinate, as well as the respective interactions between ego and personality traits. Due to the small number of supervisor the effects of all supervisor personality traits and their interactions were not estimable and were subsequently dropped from the model. Out of the remaining interactions, two were significant: subordinate agreeableness and neuroticism interacted with the ego level of the subordinate to influence supervisor reported LMX. Post-hoc tests revealed that the sign of the relationship between ego and LMX did not change across different levels of the personality variables; only the strength of the relationship was affected. Thus, main effect contrasts were run to test the hypotheses.

--- Insert Table 10 Here ---

The analysis was conclusive for the comparison between Self-aware subordinates and Conscientious subordinates: Self-aware supervisors developed significantly better quality LMX relationships with their Self-aware subordinates

than with their Conscientious subordinates. Other contrasts were not estimable in the current sample. Thus, there is only weak support for Hypothesis 2 in the second study. Taken together with the findings of the first study, there is overall only modest partial support for Hypothesis 2. The effect was in the same direction when tested on the dataset without replacing missing value, but did not reach statistical significance. Adding self-monitoring as a moderator of this relationship did not bring any significant improvement to the model. Thus, hypotheses 3a and 3b did not receive any support.

DISCUSSION

The idea of applying stage theories of adult development to the design of management education programs that promote complex understanding in managers was advocated almost 30 years ago in management research (e.g., Bartunek, Gordon, & Weathersby, 1983). Since then a number of studies have employed such theories to explore how individuals understand their work experiences (see McCauley, et al., 2006 for a review of published work). Nevertheless, such applications remain scarce. To my knowledge, this is one of the first studies that proposes and tests a relationship between the individual's sense-making system and work relationships. This study uses one of the most well supported and theoretically grounded conceptualization of meaning system extant in the developmental literature: Loevinger's ego development (e.g., Loevinger & Blasi, 1976). I proposed that different developmental orders will have different expectations regarding the content of relationships, and suggested that this will be

apparent in the dimensions of LMX that respondents emphasize. This study found support for these expectations with regard to two of the four LMX dimensions tested: lower ego individuals emphasized the Loyalty dimension, while higher ego individuals emphasized the Professional Respect dimension. No support was found for the relationship between ego and the Contribution and Affect dimensions of LMX in this study. Moreover, I also proposed that, partially because of this different emphasis but also because of similarity-attraction mechanisms, individuals would develop better LMX relationship with other individuals at the same ego stage. This hypothesis received only modest support: in the student sample Self-aware individuals showed significantly better LMX relationships with same-stage individuals than with Self-protective, Conformist, and Conscientious individuals; in the employee sample only the Self-aware vs. Conscientious comparison was estimable with the limited sample available for the test. No support was found for self-monitoring as a moderator of this relationship, nor for expected differences between supervisor and subordinate viewpoints of the relationship.

Strengths and Limitations

While, the current study breaks new ground in the exploration of research and practical benefits of applying adult developmental theories to the study of work life, nevertheless it is not without limitations. The first and most apparent is its limited sample size. Compared to previous research on stages of adult development, this study ranks among the studies with fairly overall large samples. Individual hypotheses, however, could only be run on subsets of the total sample,

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significantly reducing the statistical power available. In several cases the tests of mean differences were run on cells with as few as 7 individuals. It is thus not surprising that hypotheses received support primarily from the better represented ego stages, but were not supported for the rarer stages. Subsequent work is needed to elucidate to what degree the findings of this study apply across the entire range of ego stages.

This study partially replicates the finding on the relationship between ego and LMX in two different samples: a student sample and an employee sample. This provides increased confidence in the results. Nevertheless, it is doubtful that the classroom environment could closely reproduce the conditions exiting in a real work environment, such as those in the second study. Subsequent research on larger employee samples is needed to provide more conclusive replication of the current findings. It is quite possible that the effect of ego on relationships is more pronounced when these relationship have had more time to develop and have developed in a real work context, rather than a simulated classroom environment. I expect that larger employee samples would provide more ample support for the hypotheses proposed in this study.

This study collected data from both supervisors and subordinates and separated data collection sessions by a sufficient period of time as to avoid method biases in the results. Tests of multicoliniarity did not indicate issues in the data. Nevertheless, it was not feasible to separate all variables of interest. In particular, the LMX7 and LMX12 data were collected in the same survey. Thus, it is possible

that some method bias may explain to a certain extent the relationships between these variables. As a strength, this study employed multi-level models to test all hypotheses, thus controlling for the nesting of data.

Directions for Future Research

Overall, this study provides encouraging evidence of the role of ego stages in the development of work relationships, while controlling for the potential effects of personality. Future research should investigate to what extent this may be true for other types of relationships. The study of mentoring is a potentially fruitful application of developmental concepts. Some researchers have encouraged executive coaches to incorporate developmental perspectives into their practice, so as to maximize the help they can give to their clients (Drath & Van Velsor, 2006). This advice may apply to mentors in organizations as well. Knowing how both mentors and protégés understand their experiences opens the door to building more effective mentoring relationships.

This current study found that individuals at different stages of development emphasized different aspects of the supervisor-subordinate relationship. Future studies should investigate to what extent such different preferences also translate into different expectations with regard to the broader employee-organization relationships. Researchers have suggested that employees have implicit expectations about the employment relationship with the organization, particularly with regards to each party's obligations, which make their "psychological

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contract" (e.g., Rousseau, 1990). Because breaches of these contracts can lead to lower commitment, many studies of this construct have focused on finding out what the antecedents of breach are. Comparatively few studies look into what exactly makes up the contract – i.e., the content of the contract (e.g., Herriot, Manning, & Kidd, 1997). It is plausible that individuals at different ego stages will have different psychological constructs. For example, lower ego individuals may emphasize job security to a greater extent than higher ego individuals because of the importance of the job and of the membership to the workgroup in the definition of the self. In contrast, individuals at higher stages may emphasize discretion more, because of the increased need for autonomy that these individuals have.

In sum, this study is one of the first to explore work relationship through a constructive-developmental lens. Its findings attest to the potential that constructive-developmental theories have to better explain important management phenomena.

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ANNEXURES

Essay 3: Tables

Table 1: Stages of Ego Development

Ego Stage	Character development	Interpersonal Style	Conscious preoccupation	Cognitive Style
Impulsive (E2)	Impulsive, fear of retaliation; good and bad seen in terms of how it affects the self; dichotomous good/bad, nice/mean	Receiving, dependent, exploitive	Bodily feelings, especially sexual and aggressive	Stereotyping, conceptual confusion, no sense of psychological causation
Self-Protective (E3)	Fear of being caught, externalizing blame, opportunistic	Wary, manipulative, exploitive	Self-protection, avoiding trouble, wishes, things, advantage, control	
Conformist (E4)	Conformity to external rules, shame, guilt for breaking rules	Belonging, superficial niceness	Appearance, social acceptability, banal feelings, behavior	Conceptual simplicity, "black and white" thinking,, stereotypes, clichés,
Self-Aware (E5)	Differentiation of norms, goals.	Aware of self in relation to group, helping.	Adjustment, problems, reasons, opportunities (vague), ; banal level reflections on life issues: God, death, relationships, health	Multiplicity
Conscientious (E6)	Self-evaluated standards, self-criticism, guilt for consequences, long-term goals and ideals	Intensive, responsible, mutual, concern for communication.	Differentiated feelings, motives for behavior, self-respect, achievements, traits, expression.	Conceptual complexity can see patterns, can see a broader perspective.
Individualistic (E7)	*Add:* Respect for individuality.	*Add:* Concern for emotional dependence	*Add:* Development, social problems, differentiation of inner life from outer	*Add:* Distinction of process and outcome.
Autonomous (E8)	*Add:* coping with conflicting inner needs, tolerance.	*Add:* Respect for autonomy, interdependence.	Vividly conveyed feelings, integration of physiological and psychological, psychological causation of behavior, role conception	Increased conceptual complexity, complex patterns, toleration for ambiguity, broad scope, objectivity
Integrated (E9)	*Add:* Reconciling inner conflicts, renunciation of unattainable.	Add: Cherishing of individuality	Add: Identity	

Table 2: Ego Frequencies in Student Sample

EGO FREQUENCIES		
EGO STAGE	Percent	Cumulative
2-Impulsive	1.16	1.16
3-Self-Protective	16.20	17.36
4-Conformist	16.44	33.80
5-Self-aware	35.19	68.98
6-Conscientious	23.61	92.59
7-Individualistic	7.41	100.00

Table 3: Intercorrelations of Study Variables for the Student Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1-CWX	(.91)															
2-Ego Rater	-0.03	1														
3-Peer Neuroticism	0.03	-0.04	(.83)													
4-Peer Extraversion	0.05	0.06	-0.45	(.87)												
5-Peer Agreeableness	0.04	0.03	-0.15	0.11	(.74)											
6-Peer Openness	0.11	-0.01	0.01	0.04	0.28	(.76)										
7-Peer Conscientiousness	0.05	0.03	-0.41	0.24	0.07	0.1	(.85)									
8-Rater Neuroticism	-0.05	0.00	0.02	0.06	0.00	-0.02	0.02	(.83)								
9-Rater Extraversion	0.16	0.04	0.03	0.01	0.02	-0.01	-0.04	-0.5	(.87)							
10-Rater Agreeableness	-0.04	0.15	-0.04	0.00	0.04	0.01	0.01	-0.24	0.17	(.74)						
11-Rater Openness	0.06	0.18	-0.02	0.02	0.01	-0.01	0.01	-0.01	0.10	0.28	(.76)					
12-Rater Conscientiousness	0.03	0.03	0.02	-0.04	0.00	0.03	-0.08	-0.36	0.29	0.08	0.12	(.85)				
13-Rater Age	0.00	0.04	0.01	0.02	-0.11	-0.08	0.04	-0.10	-0.05	0.01	0.12	-0.06	1			
14-Rater Gender	0.17	-0.15	-0.02	-0.03	0.01	-0.03	0.03	-0.32	-0.05	-0.24	-0.12	-0.11	0.19	1		
15-Peer Gender	-0.14	-0.01	-0.38	-0.02	-0.27	-0.13	-0.06	-0.06	-0.01	0.01	-0.02	0.05	-0.01	-0.05	1	
16-Peer Age	-0.06	-0.05	-0.09	-0.05	0.00	0.13	-0.06	0.00	0.01	-0.13	-0.08	0.06	-0.05	0.02	0.18	1

Table 4: CWX and Ego Stage

Peers at the Self-aware Stage
Covariance Parameter Estimates

Cov Parm	Subject	Estimate	SE	Z Value	Pr > Z
Intercept	Subj ID	0.23	0.11	2.19	0.01
Residual		0.66	0.10	6.68	<.0001

Type 3 Tests of Fixed Effects

Effect	Num Df	Den Df	F Value	Pr > F
Ego Rater	5	57	2.71	0.03
Peer Neuroticism	1	46	0.67	0.41
Peer Extraversion	1	46	0.1	0.75
Peer Agreeableness	1	46	1.68	0.20
Peer Openness	1	46	0.06	0.81
Peer Conscientiousness	1	46	0.09	0.76
Rater Neuroticism	1	83	0.31	0.58
Rater Extraversion	1	83	0.21	0.65
Rater Agreeableness	1	83	0.29	0.59
Rater Openness	1	83	0.90	0.34
Rater Conscientiousness	1	83	0.15	0.69
Rater Gender	1	35	5.15	0.03
Peer Gender	1	46	0.59	0.45

Table 5: Contrast Estimates for Stage 5

Estimates					
Ego Stages (1) vs (2)	Estimate of CWX Difference (2) – (1)	SE	Df	t Value	Pr > |t|
2 vs 5	0.59	0.67	57.00	0.88	0.38
3 vs 5	0.73	0.24	57.00	2.99	0.00
4 vs 5	0.63	0.25	57.00	2.55	0.01
6 vs 5	0.51	0.19	57.00	2.73	0.01
7 vs 5	0.35	0.37	57.00	0.95	0.35

Table 6: Intercorrelations of Study Variables for the Employee Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1-Supervisor Ego	1														
2-Subordinate Ego	-0.06	1													
3-Supervisor LMX	0.02	0.06	(.91)												
4-Subordinate LMX	-0.15	-0.04	0.10	(.86)											
5-Spv. Gender	-0.31	0.22	0.27	-0.12	1										
6-Sub. Gender	-0.08	0.08	0.13	-0.05	0.47	1									
7-Spv. Affect	0.01	0.02	0.87	-0.04	0.17	0.07	(.87)								
8-Spv. Contribution	0.05	0.18	0.70	0.16	0.26	-0.12	0.45	(.82)							
9-Spv. Loyalty	-0.06	0.04	0.86	0.17	0.21	0.17	0.71	0.48	(.70)						
10-Spv. Respect	0.07	-0.01	0.86	0.04	0.27	0.25	0.68	0.51	0.62	(.88)					
11-Taking Charge	0.04	0.01	0.58	0.08	0.21	0.17	0.51	0.25	0.39	0.72	(.82)				
12-Voice Behavior	-0.01	0.19	0.38	-0.03	0.17	0.09	0.37	0.16	0.18	0.51	0.78	(.82)			
13-Spv. Neuroticism	-0.09	-0.25	-0.46	0.01	-0.13	-0.12	-0.39	-0.47	-0.32	-0.37	-0.21	-0.18	(.84)		
14-Spv. Extraversion	0.13	0.05	0.32	-0.08	0.03	-0.04	0.32	0.32	0.19	0.25	0.17	0.09	-0.07	(.84)	
15-Spv. Openness	0.08	0.02	0.28	0.12	0.08	0.18	0.13	0.3	0.29	0.25	0.12	0.03	-0.04	0.49	(.71)

Table 6: Continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16-Spv. Agreeableness	0.09	0.00	0.23	-0.24	0.09	0.19	0.15	0.11	0.18	0.30	0.12	0.11	-0.41	-0.08	0.32
17-Spv. Conscientiousness	0.05	0.18	0.17	-0.01	0.18	0.13	0.11	0.19	0.05	0.23	0.07	0.17	-0.54	-0.18	-0.05
18-Spv. Proactive Pers.	0.25	0.05	0.42	-0.12	0.20	0.34	0.26	0.32	0.45	0.38	0.30	0.10	-0.19	0.41	0.77
19-Sub. Neuroticism	0.14	-0.19	0.04	0.02	-0.10	0.00	0.04	0.01	0.06	0.04	-0.07	-0.15	0.15	0.13	0.07
20-Sub. Extraversion	0.06	0.21	-0.04	0.13	-0.16	-0.09	0.02	-0.05	-0.02	-0.08	0.06	0.21	-0.13	-0.18	-0.05
21-Sub. Openness	0.13	0.22	0.18	0.13	-0.10	-0.04	0.14	0.13	0.18	0.15	0.17	0.22	-0.20	0.00	0.23
22-Sub. Agreeableness	-0.10	0.26	0.05	-0.06	0.02	0.12	0.06	-0.04	0.12	0.00	-0.09	-0.02	-0.28	-0.11	-0.06
23-Sub. Conscientiousness	-0.06	0.26	0.01	-0.04	0.19	0.28	-0.02	0.04	0.03	0.00	-0.05	0.01	-0.25	-0.17	-0.06
24-Sub. Proactive Pers.	0.13	0.01	-0.06	-0.04	-0.16	-0.14	-0.05	0.05	-0.13	-0.05	-0.03	0.12	0.07	0.04	-0.13
25-Sub. LMX7	0.01	0.21	0.21	0.38	0.06	-0.13	0.08	0.42	0.20	0.05	0.02	-0.07	-0.05	-0.08	0.10
26-Sub. Affect	-0.14	-0.02	0.16	0.89	-0.11	-0.05	0.01	0.18	0.26	0.1	0.09	-0.02	0.02	-0.06	0.12
27-Sub. Loyalty	-0.09	-0.1	0.13	0.89	-0.17	-0.11	0.01	0.13	0.21	0.08	0.11	-0.02	0.02	-0.11	0.12
28-Sub. Contribution	-0.18	0.00	0.05	0.75	-0.02	0.07	-0.03	0.08	0.12	0.00	-0.02	-0.02	0.09	-0.02	0.14
29-Sub. Respect	-0.1	0.01	-0.01	0.89	-0.11	-0.05	-0.10	0.15	0.01	-0.04	0.08	-0.03	-0.09	-0.09	0.04

Table 6: Continued

	16	17	18	19	20	21	22	23	24	25	26	27	28	29
16-Spv. Agreeableness	(.77)													
17-Spv. Conscientiousness	0.61	(.78)												
18-Spv. Proactive Pers.	0.43	-0.10	(.86)											
19-Sub. Neuroticism	-0.06	0.00	0.00	(.84)										
20-Sub. Extraversion	0.14	0.02	0.00	-0.48	(.84)									
21-Sub. Openness	0.25	0.11	0.27	-0.16	0.42	(.71)								
22-Sub. Agreeableness	0.09	0.14	-0.02	-0.38	0.15	0.18	(.77)							
23-Sub. Conscientiousness	0.09	0.19	0.02	-0.58	0.27	0.17	0.55	(.78)						
24-Sub. Proactive Pers.	-0.09	-0.15	-0.05	-0.23	0.44	0.16	0.01	0.23	(.86)					
25-Sub. LMX7	-0.32	0.00	0.04	0.15	-0.12	0.11	-0.12	-0.07	-0.09	(.89)				
26-Sub. Affect	-0.17	-0.08	-0.06	0.06	0.19	0.12	-0.1	-0.13	-0.04	0.35	(.82)			
27-Sub. Loyalty	-0.25	-0.03	-0.06	-0.01	0.17	0.14	-0.15	-0.08	0.02	0.54	0.79	(.75)		
28-Sub. Contribution	-0.14	0.00	-0.09	0.01	0.04	0.13	0.03	0.10	-0.01	0.06	0.54	0.51	(.62)	
29-Sub. Respect	-0.27	0.08	-0.18	0.00	0.04	0.05	0.02	-0.02	-0.11	0.33	0.69	0.73	0.57	(.91)

Table 7: Supervisor-Subordinate Ego Combinations

		Supervisor-Subordinate Ego Combinations Frequencies							
		Subordinate Ego							
		2	3	4	5	6	7	8	Total
Supervisor Ego	3	0	0	1	6	4	1	0	12
	4	0	0	0	0	1	0	0	1
	5	0	1	4	22	9	0	1	37
	6	1	2	1	8	7	6	1	26
	7	0	2	1	3	3	0	1	10
	8	0	1	0	2	1	0	0	4
Total		1	6	7	41	25	7	3	90
		1%	7%	8%	46%	28%	8%	3%	100%

Table 8: Loyalty Emphasis and Ego

Covariance Parameter Estimates					
Cov Parm	Subject	Estimate	SE	Z Value	Pr > Z
Intercept	SPV_ID	0.50	0.30	1.67	0.05
Residual		0.55	0.13	4.26	<.0001

Type 3 Tests of Fixed Effects				
Effect	Num Df	Den Df	F Value	Pr > F
Subordinate Ego Stage	5	38	3.37	0.01
Subordinate Loyalty	1	38	3.90	0.05
Loyalty*Subordinate Ego	5	38	2.94	0.02

Estimates					
Loyalty*Ego Contrasts	Estimate	SE	Df	t Value	Pr > |t|
Low Loyalty 4 vs. 6	2.26	0.88	38	2.58	0.01
High Loyalty 4 vs. 6	-1.54	1.52	38	-1.01	0.31
Low Loyalty 4 vs. 7	1.54	0.92	38	1.68	0.10
High Loyalty 4 vs. 7	-1.02	1.59	38	-0.64	0.52
Low Loyalty 5 vs. 6	0.77	0.39	38	1.98	0.05
High Loyalty 5 vs. 6	-0.45	0.34	38	-1.33	0.19
Low Loyalty 5 vs. 7	0.05	0.48	38	0.10	0.92
High Loyalty 5 vs. 7	0.08	0.55	38	0.14	0.88

Table 9: Professional Respect Emphasis and Ego

Covariance Parameter Estimates					
Covariance Parameters	Subject	Estimate	SE	Z Value	Pr > Z
Intercept	SPV_ID	1.01	0.46	2.19	0.01
Residual		0.50	0.12	4.37	<.0001

Type 3 Tests of Fixed Effects					
Effect		Num Df	Den Df	F Value	Pr > F
Subordinate Ego		5	38	5.78	0.00
Subordinate Respect		1	38	0.49	0.49
Respect*Subordinate Ego		5	38	5.05	0.00

Estimates					
Label	Estimate	SE	Df	t Value	Pr > |t|
Low Respect 4 vs. 6	0.35	0.78	38	0.45	0.65
High Respect 4 vs. 6	1.52	0.72	38	2.12	0.04
Low Respect 4 vs. 7	-1.43	0.86	38	-1.66	0.10
High Respect 4 vs. 7	2.36	0.84	38	2.82	0.01
Low Respect 5 vs. 6	0.39	0.34	38	1.17	0.25
High Respect 5 vs. 6	-0.56	0.35	38	-1.58	0.12
Low Respect 5 vs. 7	-1.39	0.51	38	-2.70	0.01
High Respect 5 vs. 7	0.28	0.56	38	0.50	0.62

Table 10: Contrast Estimates for Stage 5 Ego

Covariance Parameter Estimates					
Covariance Parameter	Subject	Estimate	SE	Z Value	Pr > Z
Intercept	SPV_ID	0	.	.	.
Residual		0.21	0.07	2.92	0.0018

Type 3 Tests of Fixed Effects				
Effect	Num Df	Den Df	F Value	Pr > F
Subordinate Ego	1	15	7.66	0.01
Subordinate Neuroticism	1	15	1.25	0.28
Subordinate Conscientiousness	1	15	0.02	0.88
Subordinate Extraversion	1	15	0.53	0.48
Subordinate Agreeableness	1	15	4.00	0.06
Subordinate Openness	1	15	1.54	0.23
Neuroticism*Ego	1	15	7.95	0.01
Extraversion*Ego	1	15	0.42	0.52
Conscientiousness*Ego	1	15	2.57	0.13
Openness*Ego	1	15	0.18	0.68
Agreeableness*Ego	1	15	6.92	0.01
Subordinate Gender	1	15	2.36	0.14
Supervisor Gender	1	15	1.77	0.20

Estimates					
Label	Estimate	SE	Df	t Value	Pr > |t|
Ego 3 vs. Ego 5	Non-est	.	.	.	.
Ego 4 vs. Ego 5	Non-est	.	.	.	.
Ego 6 vs. Ego 5	24.35	8.80	15	2.77	0.01
Ego 8 vs. Ego 5	Non-est	.	.	.	.