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# Authentic Leadership and Positive Psychological Capital: The Mediating Role of Trust at the Group Level of Analysis

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## Abstract

This study investigates the relationship between authentic leadership, trust, positive psychological capital (PsyCap), and performance at the group level of analysis. Data were collected from a small Midwestern chain of retail clothing stores, a context in which the needs for both authentic leadership and a positive sales staff are integral to the firm's performance. Constructs were aggregated to the store (group) level to test relationships between perceptions of authentic leadership, trust in management, positive psychological capital, and performance. Trust in management was found to mediate the relationship between PsyCap and performance and to partially mediate the relationship between authentic leadership and performance. Future discussions and implications are discussed.

**Keywords:** authentic leadership, psychological capital, trust

The importance of authentic approaches to leadership is far reaching in both the research and practitioner domains. Economic, geo-political, and technological developments over the past few decades have placed demands on leaders that require them to be transparent, be aware of their values, and guide organizations with a moral/ethical perspective. In turn, organizations are looking to extant research to determine how to select and develop leaders that will add competitive advantage not only by impacting the short-term bottom line but also by leading with values that reflect those of stakeholders and creating a long-term vision. Management scholars have responded to these calls by pursuing research in both authentic leadership and positive psychological capital. Authentic leadership (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008) has been identified as a root construct that may influence leaders who exhibit multiple leadership styles and behaviors, opening up an unexplored area in leadership research. Emerging research in pos-

itive psychological capital (Luthans, Avolio, Avey, & Norman, 2007) suggests there is value in management scholars pursuing employee positive deviance, and although considerable research has examined negative deviance in organizations, positivity and its outcomes is largely unexplored.

More recent reviews of leadership theory also highlight that the future direction of leadership research must move away from a hierarchical, leader-centric approach to a more integrative approach in which followers, context, and group levels of analysis are hypothesized and tested to advance leadership theory (Avolio, 2007; Johns, 2006; Meindl, 1995). Furthermore, there is a continued call for leadership research to quantify how leadership behaviors can impact organizational outcomes such as firm performance (Avolio, 2007).

Avolio (2007) suggested that leadership theory has "reached a point in its development at which it needs to move to the next level of integration" (p. 25). He

noted that although several researchers have called for integrating all actors in the leadership process, namely, followers, leaders, and the context they are embedded in, a dearth of research has actually tested the role of followers in the leadership process while offering conclusions about their impact on the bottom line. To this end, the current study aims to advance leadership and organizational behavior research by extending the integrative theory of authentic leadership. Included in this theory are the roles of both positive psychological capital (PsyCap) and trust as contributors to firm performance. Furthermore, our study considers the group level of analysis in order to capture what Meindl (1995) deemed necessary for understanding the social construction of leadership. As such, we measure followers' group-level perceptions of authentic leadership, group-level psychological capital, and group-level trust in management as related to group-level financial performance. This level of analysis is based upon social contagion theory, which captures the importance of peer influence among followers in an organizational setting. Finally, we feel that this study adds value to the literature by investigating these constructs in the specific context of a small family-owned business, similar to the types of businesses that represent approximately 50% of the nonfarm United States gross domestic product (Joel Popkin & Company, 2002).

#### **Theoretical Underpinnings of Authentic Leadership and Psychological Capital at the Individual Level of Analysis**

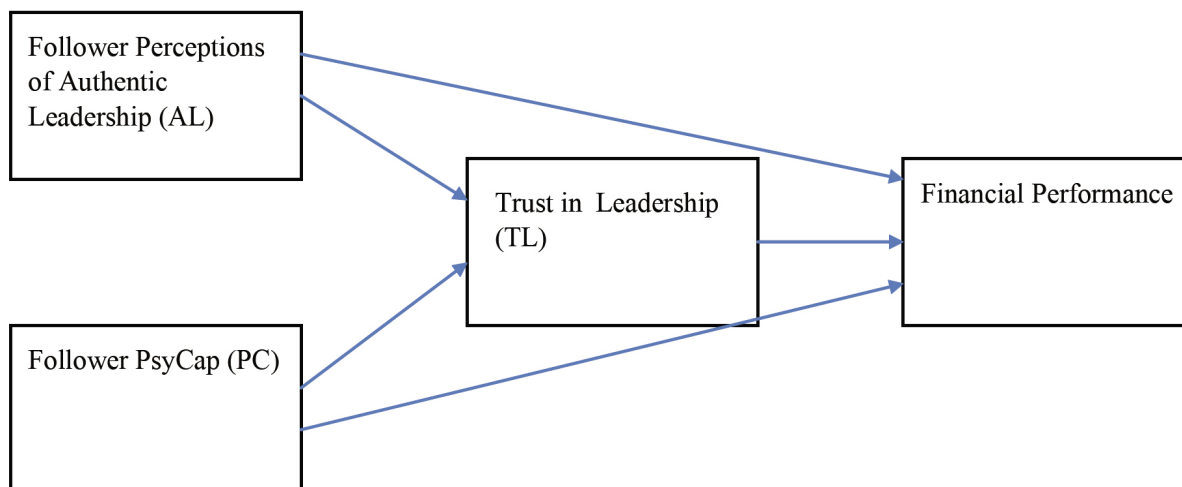
Many scholars cite the importance of the principle "to thine own self be true," which has become the central tenet of authentic leadership theory. However, we often neglect that one must also be true to others in order to be truly authentic. Luthans and Avolio (2003) suggested that our authenticity is represented in part by our positive psychological capacities (psychological capital), whereas Gardner and colleagues (Gardner, Avolio, Luthans, May, & Walumbwa, 2005) maintained that authentic relations with followers lead to trust. Although ethicists suggest that leaders who are true to their values will be more successful, scant empirical research has linked authenticity to organizational performance indicators. However, initial empirical findings suggest that authentic leadership at the individual level has an impact on follower Organizational Citizenship Behaviors (OCBs), follower commitment, follower satisfaction with the leader, and follower performance (Walumbwa et al., 2008).

The relationship of individual-level PsyCap with individual performance has been tested and established in many contexts, ranging from immigrant workers (Youssef & Luthans, 2003), to Chinese factory workers (Luthans, Avolio, Walumbwa, & Li, 2005), to business students and engineers (Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans, Avolio, Avey, & Norman, 2007).

We suggest, given evidence that a relationship exists between follower perceptions of authentic leadership, follower psychological capital, and follower performance at the individual level, an investigation into these constructs at the group level of analysis warrants investigation. Klein and colleagues (Klein, Dansereau, & Hall, 1994) and Waldman and Yammarino (1999) proposed that single variables may have effects at multiple levels of analysis. In addition, Meindl (1995) presented a strong argument for research in leadership to consider constructs at the group level to properly capture the social construction of leadership.

#### **Theoretical Underpinnings of Authentic Leadership and Psychological Capital at the Group Level of Analysis**

Given that social phenomena often occur in groups and that these group interactions influence the very nature of psychological constructs (Bandura, 1977; Meindl, 1995; Mischel, 1973), this study was conducted at the group level of analysis to determine if these social processes affect the relationships between authentic leadership, psychological capital, and performance, with trust as a mediator. Such an approach moves away from the traditional assumption of leadership, which focuses primarily on the behavior of leaders. Rather, Meindl (1995) argued the perceptions followers have of leaders are far more influential in determining follower behavior and that these perceptions are influenced by such interfollower factors as social contagion. As a result, Meindl noted that to truly capture the social process of leadership, studies utilizing the group level of analysis show evidence of the role that peers play in constructing how followers perceive their leaders. Waldman and colleagues (Waldman & Yammarino, 1999; Yammarino, Dionne, Chun, & Dansereau, 2005) demonstrated that shared perceptions of leadership are valuable perspectives in terms of unique information yielded, adding to our understanding of leadership and organizational behavior.



**Figure 1.** Theoretical Model. [PsyCap = positive psychological capital]

Given the framework of social cognitive theory and social contagion theory (Bandura, 1977, 2001; Meindl, 1995), which describe the interactions of individuals to create a social context, we argue authentic leadership and PsyCap can also exist at a group level and influence group performance. This assertion for PsyCap in relation to team performance has been supported previously both theoretically and empirically through aggregation and hierarchical linear modeling using a student sample (West, Patera, & Carsten, in press). Therefore, in order to better quantify the impact of authentic leadership and psychological capital in relation to organization-level outcomes such as firm performance, we have followed Meindl's (1995) suggestion that there may be a social contagion process that exists beyond variables analyzed at the individual level of analysis.

### Overview of the Theoretical Model

Exploring the relationships between authentic leadership, psychological capital, and performance at the group level of analysis is the foremost purpose of this study, but we also recognize the importance of extending the empirical research on authentic leadership and psychological capital by including trust as a mediating variable in our theoretical model (see Figure 1) (Baron & Kenny, 1986). Scholars have theorized that authentic leadership and psychological capital both independently relate to trust in management, which in turn has also been theorized to have an impact on firm performance (Luthans & Avolio, 2003; Mayer & Gavin, 2005).

We suggest that when followers believe their top management team exhibits the dimensions of authentic leadership, they will have greater amounts of trust in those leaders, which may lead to an increase in sales over the time period because the followers are more willing to invest time and resources toward some positive future outcome. Furthermore, we also believe that follower positive psychological capital will have an effect on the positivity climate of each unit within the company, again increasing the amount of trust the unit will have in top management because of positive future expectations and again leading to an increase in sales. Now that we have offered a theoretical overview of the constructs included in our model, we turn to a discussion of the mechanisms underlying our hypotheses.

### Authentic Leadership

Authentic leadership has emerged as a central component in positive leadership studies since its conceptualization in the late 1970s and theoretical extension as a "root construct in leadership theory" (Avolio & Gardner, 2005, p. 315). Authentic leadership, as proposed by Luthans and Avolio (2003), and further developed by Gardner et al. (2005) and Avolio and Luthans (2006), is a process by which leaders are deeply aware of how they think and behave, of the context in which they operate, and are perceived by others as being aware of their own and others' values/moral perspectives, knowledge, and strengths (Avolio, Gardner, Walumbwa, Luthans, & May, 2004). They are not only concerned with their personal authentic-

ity but also how that authenticity can be conveyed to others in order to influence followers to work toward common goals and objectives. The theoretical model of authentic leadership includes not only the leader's behaviors but also characteristics of the followers and leaders, such as their levels of psychological capital, suggesting a more integrative approach to studying leadership and organizational behavior (Gardner et al., 2005; Luthans, Norman, & Hughes, 2006).

Current findings indicate that authentic leadership is a "higher-order, multidimensional construct, comprised of self-awareness, balanced processing, relational transparency, and internalization of a moral/ethical perspective" (Walumbwa et al., 2008, p. 89). When leaders are aware of how their actions affect those around them and are open and transparent about the processes and influences inside and outside of their organizations, followers have a better sense of organizational goals/challenges. In the context of a sales-oriented organization that relies upon a self-assured and ethical workforce, we expect authentic leadership and its effects to positively predict performance growth.

Attaining these outcomes of authentic leadership is only possible when followers perceive leaders to be authentic. Thus, authentic leadership in this study is measured as the followers' perceptions of their leaders. While an individual's perceptions of authentic leadership may lead to higher motivation to perform well as an individual, shared perceptions of authentic leadership are likely to have an effect at the group level, based upon social contagion theory (Meindl, 1995). Group members engaging in interactions with each other reinforce sentiments about leaders, which leads to perceptions that are shared and are interdependent with the individual perceptions of authentic leadership. This discussion brings us to our first hypothesis:

**Hypothesis 1:** Group-level perceptions of authentic leadership (AL) will be positively related to performance as measured by sales growth (SG).

In this section, we have discussed how follower perceptions of the authenticity of the top management team can have an impact on the performance of the group. As dictated by authentic leadership theory, there are also characteristics of followers, such as psychological capital, that can have an impact on trust in management and performance indicators.

### Positive Psychological Capital

In this particular study, we were interested in examining the effects of not only the group-level per-

ceptions of authentic leadership with organizational outcomes but also the extent to which followers' PsyCap levels are related to performance outcomes. Positive psychological capital represents positive psychological states that contribute to higher levels of effectiveness and flourishing in organizations (Luthans, Youssef, & Avolio, 2007; Luthans & Youssef, 2007). PsyCap is defined as a positive state of development characterized by self-efficacy, hope, resiliency, and optimism (Luthans, Avolio, Avey, et al., 2007).

Given that PsyCap has been argued to be what Law, Wong, and Mobley (1998) described as a multidimensional construct and that PsyCap has been shown to account for more variance in predicting outcomes when considered as a core construct as opposed to each individual component (Luthans, Avolio, Avey, et al., 2007), we are primarily concerned with the combined effect of self-efficacy, hope, optimism, and resiliency on the relationship with performance and how trust mediates this relationship. As previously stated, PsyCap is best understood as the shared variance between self-efficacy, hope, optimism, and resiliency.

Self-efficacy is the positive belief or confidence in one's ability to perform specific tasks (Bandura, 1997). Individuals high in self-efficacy perceive they have the ability to take action to modify their environment to be successful at a given task. Self-efficacy is consistently related to performance through several mechanisms. For example, Stajkovic and Luthans (1998) argued that those higher in PsyCap are less likely to resign due to failure, expend more effort during task performance, and are more persistent in that effort until the task is accomplished. Therefore, we expect self-efficacy to be positively related to performance, contributing to the combined relationship PsyCap has with performance.

Hope is characterized by two dimensions: will power and pathways (Snyder, Feldman, & Taylor, 2000; Snyder & Lopez, 2002). The will power is the drive individuals experience to attain a goal. The pathways complement this drive by providing the psychological resources to find multiple, alternative paths to attaining a desired goal. High levels of hope are associated with deriving more courses of action to accomplish the same goal (pathways), which is associated with achieving goals more often. In addition, those high in hope derive the agentic motivation (will power) to execute those pathways to success. Thus, overall hope may be related to higher levels of performance.

Optimism, or the positive explanatory style of individuals and groups, also contributes to perfor-

mance. When individuals experience instances of optimism, they tend to internalize positive events and externalize negative events, resulting in more positive expectancies of outcomes (Seligman, 1998; Seligman & Schulman, 1986). When individuals attribute successes to themselves, they are more likely to expend energy to create additional successes. Likewise, when optimists attribute failures to external circumstances (outside the self) they are less likely to believe the failure will be repeated and thus be more willing to repeat attempts to be successful. This motivation and persistence will likely be associated with higher levels of performance.

Finally, resiliency is the ability of groups and individuals to bounce back from adverse or stressful situations (Luthans, 2002; Masten, 2001; Masten, Best, & Garmezy, 1990). Resiliency is unique from the other three components of PsyCap in that it is reactive rather than proactive. In other words, resiliency is a response to events, specifically negative setbacks. When individuals and groups have a setback in accomplishing their tasks or goals, the extent to which they “bounce back” quickly and effectively is the outworking of resiliency. Luthans, Youssef, and Avolio (2007) argued that resiliency would be positively related to employee performance using two assumptions: (a) that setbacks are inevitable during in-role performances and (b) that the extent to which an individual responded favorably to those setbacks would be associated with performance. Thus, through the mechanisms of responding favorably to setbacks, we anticipate resiliency will be positively associated with performance.

**Hypothesis 2:** Group-level psychological capital will be positively related to performance as measured by sales growth.

### Trust in Management

Although we hypothesize a direct relationship between group-level perceptions of authentic leadership and group-level psychological capital with firm performance measured by sales growth, we are also interested in exploring whether trust in management mediates these relationships. In this study, we also felt it important to elevate trust at the group level, to continue to explore the relationships between each specific unit within the organization.

There have been many different conceptualizations of trust in the organizational behavior literature over the past few decades (Clark & Payne, 1997; Cook & Wall, 1980; McAllister, 1995); however, the most

agreed upon definition is “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” (Dirks & Ferrin, 2002, p. 612; Rousseau, Sitkin, Burt, & Camerer, 1998, p. 395). Trust is normally treated as a perception by the follower of the leader or upper management of a firm; however, it can also be elevated to the group or climate level (Collins & Smith, 2006).

Collective trust, or trust elevated to a level consisting of more than one individual, is a shared perception by followers that the top management team attempts to act in accordance with stated beliefs about goals (Cummings & Bromiley, 1996; Jarvenpaa & Leidner, 1999). Numerous studies have found that trust is a critical component of any successful business relationship (Blau, 1964; Mayer & Gavin, 2005). In addition, it has been hypothesized and supported to be an important mediator between leadership constructs and follower outcomes. Therefore, we turn to a discussion of the mediating role of trust as to understand how this critical component to business relationships may be fostered.

### The Mediating Role of Trust in Management

Although we have hypothesized a direct link between authentic leadership and PsyCap and performance as measured by sales growth, it is important to account for the testable mechanisms and processes that may explain how these relationships manifest. The process of building trust with followers depends upon such antecedents as accommodation and willingness to sacrifice (Wieselquist, Rusbult, Foster, & Agnew, 1999) and consideration (Nugent & Abolafia, 2006). Trustworthy behaviors such as open communication and showing concern for employees also have an impact upon trust in the manager (Korsgaard, Whitener, & Brodt, 2002). Furthermore, the perceptions of organizational support and organizational justice as well as participative decision-making procedures are deemed important for the creation and sustainability of trust (Dirks & Ferrin, 2002).

#### *Trust as a Mediator Between Authentic Leadership and Performance*

The exhibition by an authentic leader of self-awareness, relational transparency, a moral/ethical perspective, and a consistent and balanced method of weighing information and decision outcomes can be expected to foster a trusting relationship with followers because these behaviors illustrate accommodation,

consideration, and communication. Furthermore, when authentic leaders take an ethical approach to decision making and engage in balanced processing instead of making snap decisions, followers may be more willing to place trust in the leader's future actions because they can use past experiences to predict future responses. This knowledge and trust, although yet to be tested empirically, should allow followers to approach their roles with confidence and vigor.

The more followers believe that their leaders are being true to themselves and behaving in accordance with their deeply held beliefs, the more followers may take a risk by offering further dedication to the top management team. In a climate for trust in management, each individual follower may see others' loyalty and increase his or her own in response. Followers who perceive leader authenticity are theorized to experience both greater levels of trust (Gardner et al., 2005) as well as development of their own capacities for authenticity and engagement in their work (Gardner et al., 2005). Higher levels of trust are subsequently expected to contribute to higher levels of growth and sustainable performance (Gardner et al., 2005; Nugent & Abolafia, 2006). Therefore, we suggest that follower perceptions of authentic leadership will contribute to follower trust within an organization's top management team and in turn result in a positive change in sales performance (Luthans & Avolio, 2003).

**Hypothesis 3:** Group-level trust in management (TM) will partially mediate the relationship between authentic leadership and performance as measured by sales growth.

#### *Trust as a Mediator Between Psychological Capital and Performance*

In the same manner in which we feel the perceptions of authentic leadership may have both direct and indirect impacts upon sales growth, we propose a similar relationship with psychological capital and sales growth. Although follower psychological capital is an important antecedent to variables such as trust, job satisfaction, and some types of job performance (Luthans, Avolio, Avey, et al., 2007), the impact upon sales performance growth may also be mediated through the followers' trust in management. The communal principles of group trust in management create an organizing force, changing the common goal (sales) from the individual's achievement to a team success (Jones & George, 1998). We suggest that group PsyCap manifests into an overarching climate for trust, impacting store-level sales perfor-

mance. Thus, a top management team that is able to envelop the psychological capital of each group into an overriding trust variable is able to reap the gains of higher sales performance. Follower psychological capital merely allows for the emergence of trust by allowing the groups to be vulnerable to management in order to see positive outcomes. This relationship brings us to our final hypothesis:

**Hypothesis 4:** Group-level trust in management will partially mediate the relationship between PsyCap and performance as measured by sales growth.

#### **Sales Growth as an Indicator of Performance**

The aforementioned hypotheses refer to an outcome variable of sales growth as an indicator of unit performance. Whereas unit-level performance may be assessed using several indicators, one indicator that was available and appropriate for this particular study was sales growth over a 4-month period. Sales growth is a primary indicator used by the field site as it may be analyzed per square foot, which neutralizes confounds present in other indicators of performance due to variations in store size, number of employees, and overhead costs. From an extant research perspective, 4 months was previously used when determining the relationship between PsyCap and performance (Luthans, Avolio, Avey, et al., 2007) and argued to be appropriate based on test-retest reliabilities of the state-like PsyCap. In other words, when viewing constructs on a continuum of stability, where personality traits are relatively stable over the life span and emotions are relatively fleeting, state-like constructs such as PsyCap have been found to be relatively stable over 4-month periods. From this perspective, such psychological states can be expected to impact outcomes at 4-month intervals.

#### **Method**

##### *Context of the Study*

Johns (2006) recommended incorporating information about context into studies in organizational behavior. Given Johns's comments, we felt the context of this study played a particularly important role in the hypothesized relationships. The company where the data were collected was a small- to medium-sized family-owned enterprise that started as a general store and grew into a chain of department stores.

Currently, the company operates 26 retail stores that focus on women's and children's apparel. The company is now led by the fourth generation and has existed for more than 125 years. The current employees of the company range from floor sales staff to general office employees who have been with the company anywhere from 6 months to 50 years.

Each generation of the family carries on company values through folklore. For instance, the importance for honesty and integrity is expressed through a story of the founder's general store in which one employee neglected to fill bags of sugar to the full weight of sale. A local competitor quickly took advantage of this discrepancy by displaying the overvalued bag of sugar in his store's window to tarnish the image of the general store. At the time, the founder of the company espoused the importance of honesty and integrity for recapturing an image in the small town that the store could be trusted for quality service. This story is repeated today to make a connection with the need to maintain integrity in the small towns in which the company currently operates, where anonymity is nonexistent and word of mouth plays a large role in company image.

The current organizational structure of a geographically dispersed organization makes the presence of authentic leadership even more important to maintaining the value of integrity. The president of the company visits each store once a year while company supervisors make frequent trips to each location in order to maintain a connection with the central values of the firm. Each store location has a manager who oversees daily operations. Therefore, as values of the firm cascade through various layers of management, greater levels of relational transparency are critical in conveying clear messages of integrity and quality service to customers. In addition, company leadership must maintain high levels of awareness as their limited personal interactions with store associates become critical to how the company values are communicated. Balanced processing further allows the authentic leadership to emerge as company leaders keep in mind the local needs of an individual store while integrating these needs into the company values and needs. For example, in many towns national apparel chains pose a competitive threat. However, the company seeks to overcome such threats by offering localized knowledge and service that goes beyond the one-size-fits-all management and service mentality of national chains. Finally, a moral/ethical perspective is ingrained in Midwestern values and must be perpetually renewed. Therefore, we expect that characteristics of small Midwestern towns, where the

company's stores operate, require greater levels of authentic leadership among top management and positivity across the firms' employee base.

Given the company's long history, it has weathered many changes in the competitive landscape. Focusing on women's and children's fashion at affordable prices, it seems the organization could be threatened by the rise of big box retailers. Although some national apparel chains are present in some towns, the company has remained under the radar of competitive threats of big box retail by providing products in towns that are too small to be interesting to large retailers such as Wal-Mart. Furthermore, authenticity plays a strategic role in the value proposition of the company in that employees (associates) provide sincere, personalized service to customers.

The company's size also provides a unique insight into leadership dynamics of small- to medium-sized companies. We chose to focus on the authentic leadership perceptions followers have of the top management team (TMT) and how this relates to sales teams' trust in management and performance because unlike large multinationals, the top management team and sales associates come into contact on a regular basis. Therefore, we found the top management team to be the most relevant referent for authentic leadership within this particular organization.

### *Sample and Procedure*

Survey and unit sales data were collected from 89 employees at 26 small retail stores, representing a response rate of 45% of the 198 total employees. Employees were predominantly female (> 90%) and 52 years old on average ( $SD = 15.4$ ), with 3.2 years tenure ( $SD = 1.5$ ) with the organization. The roles of the participants ranged from store-level associates, assistant managers, and managers to administrators working in the general office. This chain operates throughout the Midwestern United States in several different cities that range in population from 6,197 to 73,990, with an average population of 22,535 ( $SD = 16,234$ ). The units also range in size of establishment from 3,500 to 10,000 square feet with an average size of 6,265 ( $SD = 2,001$ ) square feet (see Table 1). Monthly sales for each unit range between \$8,463 and \$92,348 with a mean of \$41,324 ( $SD = \$13,564$ ).

Surveys in paper-and-pencil format were administered to participants at Time 1. This administration included instruments for authentic leadership, positive PsyCap, and trust in management. Unit sales data were then gathered and tracked from the survey administration date (Time 1) to 4 months later (Time 2).



**Table 1.** Details of Stores in the Sample

Store Number	Number of Employees	Years in Operation	Square Footage
1	11	68	10,000
3	9	78	10,000
4	4	44	5,000
5	7	40	6,690
6	4	37	5,000
8	6	25	7,000
9	8	21	4,250
10	6	24	5,850
12	6	42	4,360
13	7	17	5,830
14	7	20	4,018
15	6	14	7,100
16	5	15	3,500
17	5	11	7,200
18	6	10	4,800
19	6	6	5,913
20	6	4	5,200
21	4	4	5,200
23	5	3	5,000
25	6	2	3,500
26	6	1	5,000
DC	24	127	
GO	10	127	

Original store opened in 1880 but has been closed.  
DC = distribution center; GO = general office

### *Measures and Psychometric Properties*

Authentic leadership was measured with the multidimensional instrument developed by Walumbwa and colleagues (2008). This instrument measures authentic leadership as a second-order factor comprised of the first-order factors of transparency, self-awareness, balanced processing, and an ethical component. There are 4 items used to measure each of the four factors for a total of 16 items in the instrument. The measure uses leader behavioral statements and is based on a scale of 1 (*not at all*) to 5 (*frequently, if not always*). Example items include: "Says exactly what he or she means" (transparency), "Makes difficult decisions based on high standards of ethical conduct" (ethical), "Listens carefully to different points of view before coming to conclusions" (balanced processing), and "Knows when it is time to reevaluate his or her positions on important issues" (self-awareness). Each sub-scale and the overall 16-item scale demonstrated adequate internal reliability with  $\alpha > .70$ .

Given the novel nature of the authentic leadership instrument, a confirmatory factor analysis was conducted to ensure consistent item loadings. Using the Mplus software, each item was fit to the corresponding factor (e.g., transparency item was fit to an overall factor called transparency). Next, each of the four factors were fit to an overall second-order factor that comprised the multidimensional authentic leadership latent variable. Hu and Bentler (1999) argued that good fitting models should have a comparative fit index (CFI) of .95 or greater, a root mean square error of approximation (RMSEA) of equal to or less than .06, and a standardized root mean square residual (SRMR) equal to or less than .08. In this study, the CFI = .95, RMSEA = .09, and the SRMR = .06. Given Hu and Bentler's combinatorial rule that two of three indices should meet minimum cutoffs, the authentic leadership scale represented adequate factor-analytic fit despite less than ideal sample size for confirmatory factor analyses. Items generally loaded significantly on their respective factor and there were no cross significantly loaded items (e.g., transparency item that significantly loaded on a self-awareness factor). Therefore, we determined overall acceptable psychometric properties of the authentic leadership scale replicating findings of Walumbwa and colleagues (2008).

Trust was measured with Mayer and Gavin's (2005) trust in management instrument. Similar to the work of Mayer and Gavin, the trust instrument yielded acceptable internal reliability ( $\alpha = .73$ ). An example item from this scale is "If someone questioned management's motives, I would give management the benefit of the doubt."

Positive PsyCap was measured with the 24-item instrument developed by Luthans, Youssef, and Avolio (2007). This instrument has demonstrated strong psychometric properties in confirmatory factor analyses in several studies (e.g. Luthans et al., 2005; Luthans, Avolio, Avey, et al., 2007). Similar to the authentic leadership instrument, positive PsyCap is a second-order factor comprised of efficacy, hope, resilience, and optimism. The instrument includes 6 items for each of the four factors. Example items are: "I feel confident helping to set targets/goals in my work area" (efficacy); "If I should find myself in a jam at work, I could think of many ways to get out of it" (hope); "When I have a setback at work, I have trouble recovering from it and moving on" (reversed; resilience); and "When things are uncertain for me at work I usually expect the best" (optimism). The PsyCap scale demonstrated adequate internal reliability of  $\alpha = .87$ .

The dependent variable in this study was unit sales performance. Sales performance was operationalized by determining the sales delta between Time 1 (time of survey administration) and Time 2 (4 months later). Change in sales is considered a more rigorous and accurate measure of the relationship with independent variables as it controls for previous levels of unit sales performance.

In addition to controlling for previous unit sales performance, each store ranges in both square foot of the unit (e.g., store space) and population of city, which heavily influence sales quantity. Therefore, the change in sales performance was calculated per square foot by dividing the delta by the total square feet of the unit. Thus, the final dependent variable was calculated as the change in unit sales from Time 1 to Time 2 divided by the square feet of the unit. The change in sales per square foot also compensates for the difference in store sizes and the difference in overhead costs that flat profit or sales figures would ignore. Furthermore, the company strives to create growth among its stores year over year and views a change in sales as its primary indicator of performance improvement. In addition to controlling for square feet of the unit, population of city was added to the path analysis as a covariate on the dependent variable unit sales performance.

We also used Jarvenpaa, Knoll, and Leidner's (1998) Propensity to Trust Scale. This is a seven-item scale that aims to address an individual's global level of trust versus situational or leader-specific trust. Examples of items from this 5-point Likert scale are: "One should be very cautious when working with leaders" (reverse scored) and "Most leaders are honest in describing their experiences and abilities." The purpose for this instrument was to control for the individual differences in the trait-like measure of overall propensity to trust, which is different from the domain-specific aspect of trust in management. This scale demonstrated adequate internal reliability ( $\alpha = .74$ ).

#### Levels of Analysis

Research in organizational behavior has long considered the influence of levels of analysis including empirical issues of aggregation of variables (Klein et al., 1994; Rousseau, 1985; Yammarino et al., 2005). We conducted a series of within-group analyses to assess levels of homogeneity on the variables of interest. Given the varying echelons that exist within organizations, particularly when the top management team is the referent focus, aggregation has been recommended to properly incorporate the levels of management into the levels of analysis (Waldman &

**Table 2.** Aggregation Statistics for All Variables

Variable	$r_{wg}$	ICC(1)	ICC(2)
Unit PsyCap	.80	.42	.76
Unit AL	.86	.48	.93
Unit trust	.90	.48	.90

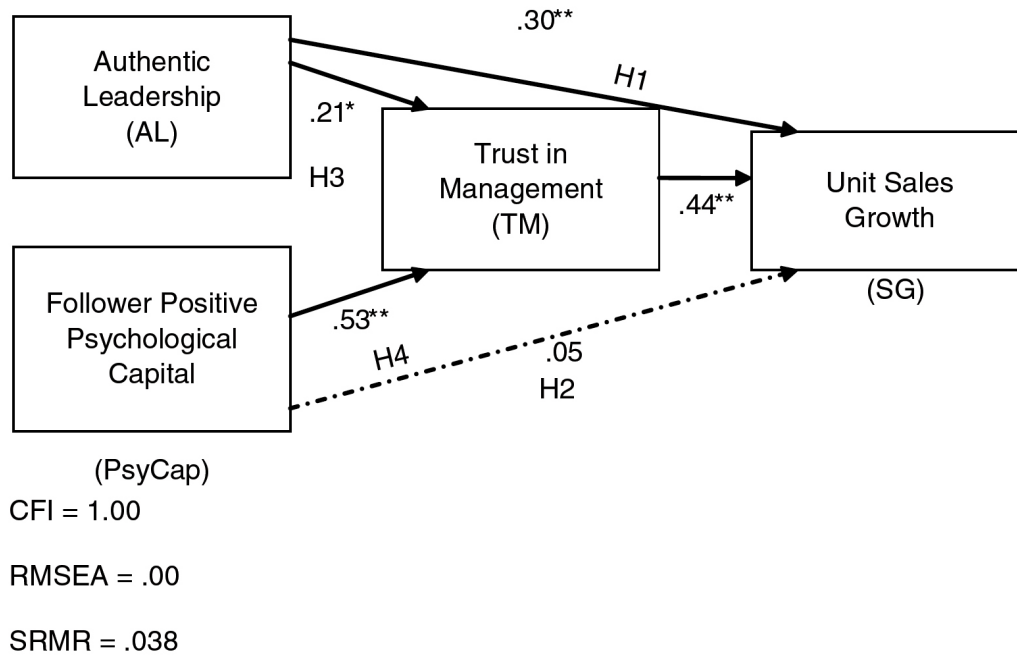
ICC = intraclass correlation; PsyCap = positive psychological capital; AL = authentic leadership.

Yammarino, 1999). Thus, we did so by utilizing James, Demaree, and Wolf's (1993)  $r_{wg}$  statistic to examine the variance within each unit.  $r_{wg}$  indices of .70 or greater have been argued to represent support for aggregation such that the group tends to "share" perceptions of the construct of interest. The observed  $r_{wg}$  statistics can be seen in Table 2. Each of the variables of authentic leadership, trust, and PsyCap demonstrate adequate  $r_{wg}$  indices ( $r_{wg} > .70$ ). Thus, we moved to the next set of aggregation analyses.

We performed analysis of variance (ANOVA) on the three variables based on the grouping factor (e.g., store) and found a statistically significant between-group difference, also evident in Table 2. Given the importance of both  $r_{wg}$  and intraclass correlation (ICC) statistics in aggregation analyses, to estimate the level of agreement between raters we also computed the ICCs. Although there are no clear cutoffs for ICC values, we found indices to be consistent with prior research justifying aggregation (see Bliese, 2000, for a discussion of ICC in organizational research; see also Shrout & Fleiss, 1979). Given the theoretical nature of the constructs and operationalizations, complemented by adequate findings when we employed indices of  $r_{wg}$ , ANOVA, ICC(1), and ICC(2), we found evidence to support aggregation of the authentic leadership, trust, and PsyCap variables.

#### Hypothesis Tests

Path analysis in structural equation modeling (SEM) software (MPlus) was used to test hypotheses represented in Figure 2 at the unit level of analysis. This SEM technique is considered more rigorous than typical stepwise regression techniques as all mediation paths are measured simultaneously rather than step by step. In addition, the model fit indices, error indices, and modification indices indicate missing paths that may improve the overall fit of the model. In this study, the data demonstrate strong fit with the model as the CFI = 1.00, RMSEA = .00, and the SRMR



**Figure 2.** Path Model With Beta Weights Path Model With Beta Weights.  
[CFI = Comparative Fit Index; RMSEA = root mean square error of approximation;  
SRMR = standardized root mean square residual]

= .038 including all covariates in the path model. In addition, modification indices recommend no additional paths other than those specified in the original model.

When conducting these path analyses, all covariates described in the measures section were included in the path model analysis. Hypothesis 1 predicted that authentic leadership would be positively related to change in unit sales performance. As seen in Figure 2, this hypothesis was fully supported as authentic leadership was significantly related to change in unit sales performance ( $\alpha = .30, p < .05$ ). Hypothesis 2 predicted that PsyCap would have a positive relationship to a change in sales from Time 1 to Time 2. Surprisingly, in light of earlier empirical evidence of this relationship, this direct relationship was not supported.

Hypothesis 3 predicted that trust would partially mediate the relationship between authentic leadership and change in unit sales performance. Baron and Kenny's (1986) technique, as revised by Kenny, Kashy, and Bolger (1998), for testing mediation hypotheses was the guiding analysis technique used for testing the main hypothesis on trust as a mediator. According to Baron and Kenny, there is support for mediation if the following are obtained: (a) The independent variables relate to the dependent vari-

able, (b) the independent variables relate to the mediating variable, and (c) the mediating variable relates to the dependent variable and the relationship of the independent variables with the dependent variable is significantly lower in magnitude. In this path analysis, as seen in Figure 2, authentic leadership was significantly related to the mediating variable trust, and trust was significantly related to the dependent variable change in unit sales. With trust in the path model, authentic leadership remained a significant predictor of change in unit sales performance suggesting partial mediation. Thus, overall we observed full support for Hypotheses 3.

In the final hypothesis (4), we predicted that trust would partially mediate the relationship between PsyCap as the independent variable and change in unit sales performance as the dependent variable. Similar to the mediation test in Hypothesis 3, Baron and Kenny's (1986) technique, as revised by Kenny et al. (1998), as applied in path analysis was the guiding analysis technique.

As depicted in Figure 2, PsyCap was significantly related to the mediating variable trust, and trust was significantly related to the dependent variable change in unit sales. With regard to PsyCap and the dependent variable unit sales growth, modification indices in the structural model recommended no additional path

from PsyCap to the dependent variable. Therefore, to further determine mediation, a Sobel (1982) test was conducted. This test is designed to assess whether a mediating variable (trust) carries the effects of the independent variable (PsyCap) to a dependent variable (unit sales growth). The test statistic computed measures the indirect effect of the independent variable on the dependent variable by way of the mediator. Reported  $p$  values are obtained from the unit normal distribution under the assumption of a two-tailed test of the hypothesis that the mediated effect equals zero in the population using  $\pm 1.96$  as the critical values, which contain the central 95% of the unit normal distribution (Preacher & Hayes, 2004). A significant  $p$  value indicates support for mediation. Results of the Sobel test indicate that trust fully mediates the relationship between PsyCap and change in unit sales performance generated ( $z = 2.194, p < .05$ ). Thus, with support from both path analysis and the Sobel test, we conclude that trust fully mediates the relationship between PsyCap and change in unit sales performance, partially supporting Hypothesis 4.

#### *Post Hoc Analyses*

As previously stated, Luthans, Avolio, Avey, and Norman (2007) tested the stability of PsyCap and suggested 4 months to be adequate time for such self-opinion constructs to be relatively stable. As applied to this model, a shorter period of time may not allow for constructs to manifest to behaviors that affect performance and a longer period of time may lead to change in the construct levels rendering prediction faulty without measuring predictor variables a second time. Given that the sales data were available at multiple points in time, we conducted a post hoc analysis to determine the extent that a change in temporal separation between the predictors and criterion would demonstrate differing results. Using the same model, results for sales growth at 2 months (vs. 4 months as in Figure 2) show no significant relationship between authentic leadership ( $\beta = -.08, p = .54$ ), trust in management ( $\beta = -.01, p = .93$ ), or PsyCap ( $\beta = .22, p = .16$ ) and sales growth for the organization. Replicating these analyses using the sales growth criterion at 6 months, results again show no significant relationship between authentic leadership ( $\beta = -.22, p = .11$ ), trust in management ( $\beta = -.19, p = .23$ ), or PsyCap ( $\beta = .16, p = .30$ ) and sales growth. Overall, this supports Luthans' and colleagues' assertions that 4 months may be an ideal temporal separation for some state-like constructs in terms of predicting theoretically related outcomes.

## Discussion

In proposing a model of authentic leadership development, Luthans and Avolio (2003) suggested that positive psychological capacities provide evidence of "who I am," which plays a role in the self-development of the individual. Gardner et al. (2005) recommended that when considering authentic leadership, the role of the follower is equally important to understanding the leadership process as is the leader. Therefore, in this study we examined how the leader's authenticity and the followers' PsyCap each contribute to group-level trust in management. This is a critical distinction as many studies in the past have considered the positive capacities of the leader only and the impact of these characteristics on follower perceptions (Luthans, Avey, Avolio, Norman, & Combs, 2006). Here, we consider both group-level perceptions of the leader (authentic leadership) and group-level follower characteristics (PsyCap) and their relationship with the group's trust in management.

Support for Hypotheses 1 and 3 provides the first empirical test of the relationship proposed by Gardner et al. (2005), namely, that authentic leadership is related to both performance and trust. When followers perceive that their leaders are authentic, they also will believe they can trust those leaders. Trust has been suggested as a mediator to performance for many leadership theories, and this study adds further evidence that this relationship is consistent. In addition, this study shows that trust in leadership may be considered at the group level and maintains the relationship with performance when tested at this level of analysis.

Hypothesis 4 suggested that group-level follower PsyCap has a relationship with trust, which mediates the relationship with performance. The significant findings provide evidence for the importance of not only capturing the perceptions that followers have of their leaders but also the perceptions they have of themselves. Indeed, followers and their psychological states are equally important to understanding how leadership processes influence performance. Thus, because the level of follower PsyCap had a positive relationship with the level of trust that groups had in their company leadership, we come closer to understanding not only the states and behaviors of the leaders that are crucial to organizational performance but also the role of followers' positivity. In addition, by analyzing PsyCap at the group level, we find further evidence for how the dynamics of social cognitive theory and social contagion may influence tra-

ditionally individual-level constructs to also exist at group levels. We therefore supported what Meindl (1995) suggested with regard to group-level follower characteristics in the leadership process.

The post hoc analysis raises an interesting contribution with regard to development of leadership processes within organizations. Luthans, Avolio, and colleagues have argued that one approach to developing authentic leadership within organizations is to utilize micro interventions (Luthans, Avey, Avolio, et al., 2006). One implication of the state-like nature of psychological constructs addresses an issue that many development theorists raise: the efficacy of one-time training seminars in impacting true effects. Results from our study suggest that to impact change, development may be more successful with booster interventions in roughly 4-month intervals.

### Limitations

Naturally, some limitations to this study exist, particularly with the sample size and a study design that does not allow for interpretations of causality. Nonetheless, the study does capture a temporal component of relationships as well as control for a number of potentially confounding variables, although we recognize that with field studies all confounds may not be controlled. Future directions for this particular stream of research are to take a longitudinal approach to capture more data points throughout a given time frame and understand how fluctuations of psychological states may influence the trust relationship. In addition, a developmental intervention would give further evidence of the role of authentic leadership in terms of its contribution to building trust and performance. A greater sample size would allow for more sophisticated analysis that could capture the multi-level relationships that exist in most organizations.

We also recognize that sales growth of stores per square foot is but one of many indicators of performance. Thus, we do not portend to explain performance outright; rather, we believe we have displayed evidence that authentic leadership, positive PsyCap, and trust have relationships with aspects of store-level performance and believe that this is a contribution to our understanding of leadership and trust in organizations. However, we are cautious to make broad sweeping assumptions about the results of this study given the limitations of the performance indicator that was available to us. Furthermore, a 4-month time period provides only a brief snapshot into a company's inner workings. As mentioned previously, we recommend future study designs that collect the study variables as well as performance indicators at

multiple time points to more accurately reflect fluctuations over time. Such a design was not possible at the current field site.

Overall, this study provides evidence for the importance of authentic leadership and the establishment of trust in organizations that are built around groups. Future directions beyond this study could include testing additional outcome variables such as organizational citizenship behaviors and satisfaction.

In conclusion, we sought to test relationships in the authentic leadership development models proposed by Luthans and Avolio (2003) and Gardner et al. (2005). We found that when a firm's leadership embraces the idea of "to thine own self be true," significant relationships with trust and performance arise. Furthermore, we found that the positive psychological capital of follower groups also positively relates to the level of trust in top management perceived by followers. Therefore, we have tested a model that represents both the leader and the followers and provides an objective measure of unit performance for the group level of analysis. We were further able to represent the group level for each of the constructs of interest and show that PsyCap and trust can exist at the group level and have meaningful relationships with performance.

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