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**How authentic leadership promotes individual performance:
mediating role of organizational citizenship behavior and
creativity**

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How authentic leadership promotes individual performance: mediating role of organizational citizenship behavior and creativity

Abstract

Purpose: This study sought to provide a more comprehensive understanding of how authentic leadership (AL) can affect individual performance through creativity and organizational citizenship behavior (OCB)'s mediating roles.

Design/methodology/approach: The sample included 177 leader-follower dyads from 26 private and small and medium-sized organizations. Followers reported their perceptions of AL, and leaders assessed each follower's level of creativity, individual performance, and OCB.

Findings: The findings show that AL has a positive impact on OCB (i.e., altruism, sportsmanship, civic virtue, conscientiousness, and courtesy), employee creativity, and individual performance. Creativity partially mediates the relationship between AL and individual performance. Some dimensions of OCB, namely, altruism, civic virtue, and courtesy, also play a mediating role in this relationship.

Research limitations/implications: Additional studies with larger samples are needed to determine more clearly not only AL's influence on individual performance but also other psychosocial variables affecting that relationship.

Practical implications: Organizations can increase employees' creativity, OCB, and individual performance by encouraging managers to adopt more authentic leadership styles.

Originality/value: This study is the first to integrate AL, creativity, OCB, and individual performance into a single research model, thereby extending previous research. The study also used a double-source method to collect data (i.e., leader-follower dyads) to minimize the risk of introducing common-method variance.

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3 **Keywords:** authentic leadership, creativity, organizational citizenship behavior, individual
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5 performance

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7 **Article classification:** Research paper
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10 11 **1. Introduction**

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13 The recent economic crisis and austerity measures implemented in various countries
14 have resulted in more negative working conditions and put a strain on the relationships
15 between organizational leaders and followers. In addition, the latest ethical and financial
16 scandals have fostered a high level of mistrust among many organizational members and
17 intensified the need to consider new positive forms of leadership such as authentic leadership
18 (AL). This style of leadership is based on leaders' moral character and concern for others, as
19 well as congruency between ethical values and actions (Shahid, 2010).
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29 AL has emerged as a potentially effective approach that fosters positive employee
30 behaviors with benefits for specific workgroups and entire organizations. For instance,
31 positive extra-role behaviors, such as organizational citizenship behavior (OCB), go beyond
32 formal requirements but promote the effective functioning of organizations (Organ, 1988).
33 Employee creativity (i.e., the generation of novel and useful ideas) (Amabile, 1988) also is
34 considered indispensable to organizations' ability to adapt in the current fast changing and
35 competitive global business environment.
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44 Leaders thus must promote their employees' OCB, which is a multidimensional
45 concept including several facets of voluntary behavior (i.e., desirable comportment not
46 reflected in formal job requirements). These behaviors are advantageous to organizations
47 because of this conduct's association with improved employee performance and more
48 effective organizations (Podsakoff *et al.*, 2009). Similarly, leaders need to promote their
49 followers' creativity through interactions and the creation of work environments that foster
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3 ingenuity. Creativity is of value to organizations to the extent that it impacts employees'
4 performance (Gilson, 2008). Overall, “transparent, reliable, trustworthy, ethical, and
5 veritable” leaders (Luthans and Avolio, 2003, p. 4), namely, authentic leaders, are more likely
6 to increase their followers’ OCB and creativity, which, in turn, improve employees’
7 individual performance.
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13 AL is a new explanatory theory of organizational leadership that has attracted
14 widespread attention from researchers because they believe that AL can reinforce employees’
15 positive attitudes and behaviors (Avolio and Gardner, 2005). Ilies *et al.* (2005) suggest that,
16 because leaders with relational authenticity strive for open, truthful relationships with their
17 followers, this orientation has a number of positive consequences. The present study sought to
18 develop a deeper understanding of the effects of AL on employees’ outcomes—more
19 specifically, OCB, creativity, and individual performance. In particular, this research aimed to
20 extend the existing knowledge in this field by exploring the mediating role of OCB and
21 creativity in the relationship between AL and employee performance.
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33 A few researchers have previously conducted empirical studies of AL’s relationships
34 with creativity (e.g., Banks *et al.*, 2016; Li *et al.*, 2014; Mubarak and Noor, 2018; Rego *et al.*,
35 2014), OCB (e.g., Joo and Jo, 2017; Zaabi *et al.*, 2016), and individual performance (e.g.,
36 Clapp-Smith *et al.*, 2009; Walumbwa *et al.*, 2011). However, none of these studies has
37 integrated the four concepts into a single research model. This critical gap thus needs to be
38 filled through positive organizational research that provides a model depicting the chain of
39 effects from AL to employees’ individual performance.
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48 The recent literature on AL has increasingly called for studies considering different
49 types of intermediary variables to explain the relationships between AL and various outcomes
50 (Arda *et al.*, 2016). In particular, the mediating role of creativity and OCB in the relationship
51 between AL and employees’ individual performance is still underexplored in this literature.
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3 Therefore, the present study set out to address the aforementioned calls for further research by
4 testing these mediating effects. In addition, by examining the mediating mechanisms of
5 creativity and OCB on the relationship between AL and individual performance, this study's
6 results provide valuable insights into AL theory. Although the proposed research model
7 included some relationships that had been previously examined, the further connections
8 explored among these relationships represent an important extension of prior work that helps
9 explain the process of how these elements operate in unison (see Figure 1).
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18 *Please insert Figure 1 here*
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20 This study's findings thus provide a more comprehensive understanding of how AL
21 can relate to individual performance through creativity and OCB's mediating roles. Compared
22 with previous research, the present study conducted a more rigorous empirical examination by
23 collecting data from two sources (i.e., dyads of leaders and followers). By making use of a
24 double-source method for collecting data, the risk of introducing common method variance
25 was avoided. The results thus contribute significantly to a better understanding of what is
26 currently clearly a central challenge for many organizations: to develop authentic leaders
27 capable of motivating employees to engage in positive behaviors.
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39 **2. Theoretical Framework and Hypotheses Development**

40 *2.1 AL*

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42 The notion of authenticity has been around for centuries. According to Kapasi *et al.*
43 (2016, p. 340), authenticity is to "act in accordance with one's true self." Gardiner (2013)
44 suggests that individuals ultimately define themselves through interactions with others, which
45 raises the question of how a "true self" can exist. Researchers generally agree that people can
46 show different degrees of authenticity and that no one is completely authentic or inauthentic
47 (Gardner *et al.*, 2011). Nonetheless, the apparent degeneration in the moral quality of
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contemporary leadership (Avolio and Mhatre, 2012) has created an even stronger need for more authentic leaders.

AL theory suggests that individuals whose internal and external selves are congruent express authenticity. The concept of AL emerged in the academic literature with the birth of the positive psychology movement (Luthans and Avolio, 2003). More specifically, AL was conceived of as a root construct of the positive practices of leadership needed to develop positive work contexts (Avolio and Gardner, 2005; Avolio *et al.*, 2004). Walumbwa *et al.* (2008, p. 94) thus define AL as:

A pattern of leader behavior that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development.

However, no single AL definition is accepted by all. Instead, a set of four components has been used in a growing number of empirical studies (Walumbwa *et al.*, 2008). The first of these components is self-awareness or the degree to which leaders understand their strengths, weaknesses, values, beliefs, and emotions, as well as how leaders impact others. The second is relational transparency, namely, presenting leaders' authentic selves and sincere feelings, emotions, and thoughts to followers. The third is a balanced processing of information in which leaders objectively analyze all relevant information before making decisions and solicit views that question their own positions.

The last component is an internalized moral perspective. That is, authentic leaders are guided by moral values and standards, and their behaviors and decisions are consistent with internalized values, as opposed to group, organization, or societal pressures (Avolio, 2005; Avolio and Gardner, 2005; Avolio *et al.*, 2004; Gardner *et al.*, 2005; Shamir and Eilam, 2005;

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3 Walumbwa *et al.*, 2008). Leaders are considered authentic to the extent that they embody
4 these four elements. The empirical and theoretical evidence from previous research also
5 suggests that a core AL factor can be the relationships among the four components (Gardner
6 *et al.*, 2005; Kernis and Goldman, 2005; Rego *et al.*, 2012; Walumbwa *et al.*, 2008).
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11 Despite researchers' expectations of correlations between AL theory and
12 transformational (Joo and Nimon, 2014), ethical (Brown and Treviño, 2006), charismatic,
13 servant, and spiritual leadership theories (Avolio and Gardner, 2005), studies have identified
14 several differences. For example, Walumbwa *et al.* (2008) found that correlations between AL
15 and transformational and ethical leadership are not high enough to indicate that the concepts
16 duplicate each other (Baron, 2016). Therefore, while some overlap can exist between AL and
17 other leadership theories, AL has unique components.
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26 Authentic leaders treat their employees with respect, look after their needs, and protect
27 their dignity. These leaders thus inspire employees to engage in behaviors that have positive
28 outcomes for the workplace.
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35 2.2 AL and creativity

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37 Creativity is the generation of novel and useful ideas (Amabile, 1988; George and
38 Zhou, 2007; Oldham and Cummings, 1996; Shalley *et al.*, 2004; Zhou and Shalley, 2003). To
39 be considered creative, innovative ideas must be unique relative to other ideas available in
40 teams and/or organizations (Shalley *et al.*, 2004), having the potential to create value in the
41 short or long run (George, 2007). Thus, creativity represents an important aspect of
42 organizational change and organizations' efficiency and survival (Woodman *et al.*, 1993).
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44 Although creativity can be considered both an outcome and a process (Shalley and Zhou,
45 2008), the present study treated individual creativity as an outcome, that is, the extent to
46 which new ideas and useful solutions are produced by employees.
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3 Leaders can promote their followers' creativity in two main ways: encouraging
4 interactions and developing a work climate supportive of ingenuity. More specifically, leaders
5 can stimulate employees' creativity by fostering positive, fair, and transparent interactions
6 (Madjar *et al.*, 2002; Muceldili *et al.*, 2013; Peterson *et al.*, 2012); demonstrating the skills
7 needed to solve technical and creative problems (Mumford *et al.*, 2002); or providing support
8 (Madjar *et al.*, 2002; Oldham and Cummings, 1996). When leadership behaviors are a
9 significant contextual factor, they can support or inhibit creativity at work (e.g., Liu *et al.*,
10 2012; Tung and Yu, 2016).
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20 Empirical research has linked AL with individual followers' creativity (e.g., Ilies *et*
21 *al.*, 2005; Li *et al.*, 2014; Rego *et al.*, 2014; Walumbwa *et al.*, 2008; Zhou *et al.*, 2014). Since
22 authentic leaders promote positive interactions between leaders and employees (George,
23 2003) and increase employees' positive emotions, researchers have had good reason to posit
24 that AL has a positive relationship with individual creativity (Banks *et al.*, 2016; Černe *et al.*,
25 2013; Leroy *et al.*, 2012). Positive emotions create the urge to play, adopt unconventional
26 thinking, and be creative. These emotions result in wellbeing at work, increasing employees'
27 desire to explore and assimilate new ideas, discover fresh information, and develop their
28 individual potential, as well as inducing them to be more creative (Wright and Cropanzano,
29 2004).
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41 Authentic leaders' actions are guided by their words, values, and beliefs, thereby
42 contributing to open and truthful relationships with their followers and promoting a work
43 environment in which creativity is fostered and encouraged (Ilies *et al.*, 2005; Rego *et al.*,
44 2013). Authentic leaders also focus on followers' talents and strengths and seek to liberate
45 their potential (Luthans and Avolio, 2003). As a result, followers feel more confident,
46 flexible, and original, that is, prone toward a more creative mindset. Authentic leaders feel
47 less threatened by the changes that the creative ideas of subordinates might imply and more
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3 likely to accept such suggestions (Michie and Gooty, 2005), thus welcoming and promoting
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5 employee creativity.

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7 In summary, authentic leaders may encourage employees to be creative because these
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9 managers inspire trust and positive achievements, which stimulates “thinking outside the box”
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11 and improves emotional safety (Avolio *et al.*, 2004). In view of these considerations, the
12
13 following hypothesis was proposed for the present study:

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16 ***Hypothesis 1: Employees’ perceptions of AL are positively related with their creativity.***

17 18 19 20 2.3 AL and OCB

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22 OCB refers to individuals’ autonomous behaviors that are not directly or explicitly
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24 recognized by formal reward systems but that help their organizations to function effectively
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26 (Organ, 1988). The cited author suggests five OCB dimensions have been the most frequently
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28 examined by researchers (e.g., Podsakoff *et al.*, 2000; Schnake and Dumler, 2003). These are,
29
30 first, altruism or voluntarily helping others with organizationally relevant tasks or problems.
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32 The second is sportsmanship, which refers to tolerating the inevitable inconveniences and
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34 annoyances of organizational life without complaining and filing grievances. The third
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36 dimension is courtesy or behaviors that seek to prevent work-related problems with others.
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38 The fourth is conscientiousness, which involves employee behaviors that go beyond minimal
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40 requirements when carrying out work-related tasks. The last dimension is civic virtue or
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42 responsive, constructive involvement in the workplace.
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47 Williams and Anderson (1991) further divide OCBs into two categories. The first is
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49 OCB toward individuals, namely, behaviors that are directly helpful to specific individuals
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51 and that indirectly contribute to organizations. The second is OCB toward organizations, that
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53 is, behaviors directly contributing to organizations. Overall, OCB improves social capital and
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55 enhances organizational functions (Bolino *et al.*, 2002) and effectiveness (Podsakoff and
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MacKenzie, 1997; Rego and Cunha, 2008). Furthermore, researchers have found that OCB reduces adverse employees' behaviors and attitudes such as turnover intention and absenteeism (Podsakoff *et al.*, 2009; Shahin *et al.*, 2014).

The assumption is that, if leaders make an effort to inspire positive types of behavior, employees are more likely to demonstrate these. Therefore, authentic leaders offer role models that can have a positive effect on their employees' behavior, which, in turn, can translate into effective OCB. Hackett *et al.* (2003), for example, found a strong correlation between the quality of leader-member exchanges and overall OCB.

Researchers have also found that the more employees perceive their leaders to be authentic, the higher their level of satisfaction is with those leaders, which affects their organizational commitment and willingness "to walk the extra mile" (i.e., exhibit OCB) (Clapp-Smith *et al.*, 2009; Moriano *et al.*, 2011). The relevant literature has shown that AL creates a positive, transparent, and fair environment that influences employees' attitude and willingness to engage in OCB. For example, Walumbwa *et al.* (2007) found that the composite factor of AL dimensions was a significant positive predictor of self-reported OCB, as well as supervisor-rated job performance—after controlling for organization climate. According to Zaabi *et al.* (2016), AL significantly increases OCB among workers in the petroleum sector. Joo and Jo (2017) also found that perceived AL has a significant impact on employees' OCB.

It can also be explained by social exchange theory (Blau, 1964), that is, when employees perceive their leaders as authentic, they develop a feeling of obligation to reciprocate by additional efforts in activities that extend beyond their normal duties. In summary, previous studies' findings have suggested that authentic leaders are primarily responsible for the OCB of their followers (Avolio *et al.*, 2004; Kernis, 2003; MacColl-

Kennedy and Anderson, 2002). Therefore, the following hypothesis was proposed for the present study:

Hypothesis 2: *Employees' perceptions of AL are positively related with their OCB.*

2.4 AL and individual performance

According to Campbell (1990), employees' individual performance refers to a set of individual actions and behaviors that are relevant to their organizations' goals. One of the simplest definitions of employee performance is "the extent to which a job is well done" (Campbell *et al.*, 1993). The assessment of individual employees' performance is important not only to ensure better management of companies but also to facilitate empirical analyses. Good individual performance thus means employees have accomplished job-related responsibilities to a satisfactory extent or to the degree expected by their employer.

Researchers have found AL to be related positively to employee performance (Clapp-Smith *et al.*, 2009). That is, AL drives employee performance and OCB through higher trust and identification with the leaders in question (Walumbwa *et al.*, 2011). Authentic leaders are true to their moral and ethical values and strive to achieve open and genuine relationships (Gardner *et al.*, 2005; Ilies *et al.*, 2005; Kernis, 2003), thereby promoting their followers' development and, consequently, improving their performance. Furthermore, authentic leaders emphasize employees' talents and strengths, liberate their potential (Gardner and Schermerhorn, 2004; Luthans and Avolio, 2003), and emphasize their growth. As a result, employees' self-efficacy potentially increases through the effects of self-fulfilling prophecies (Avolio *et al.*, 2004; Gardner *et al.*, 2005; Luthans *et al.*, 2007).

According to belongingness theory (Baumeister and Leary, 1995), one of the primary human drives is the need to belong and form strong positive interpersonal relationships. Thus, AL likely stimulates employees to perform better because of their need to belong. That is, workers want to feel a sense of belonging to their organization, and they need strong positive

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3 interpersonal relationships, thus workers' perceptions of AL encourage them to improve their
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5 performance, thus providing benefits to their organization.

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7 Overall, previous studies have confirmed that followers reciprocate their leaders'
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9 authenticity with better individual performance (Ribeiro *et al.*, 2018). Social exchange theory
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11 (Blau, 1964), therefore, can be used to explain why individuals who perceive AL develop a
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13 feeling of obligation to reciprocate by improving their performance. Accordingly, the
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15 following hypothesis was proposed for the present research:

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18 ***Hypothesis 3: Employees' perceptions of AL are positively related with their individual***
19
20 ***performance.***
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23 24 *2.5 Creativity and individual performance*

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26 Creative employees have unique characteristics that help them differentiate themselves
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28 from co-workers, specifically through the exercise of independence, confidence, and a
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30 willingness to take risks (Sternberg and Lubart, 1999). These features promote greater
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32 flexibility, thus making these individuals more adaptable and open to new experiences and,
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34 consequently, better able to achieve higher individual performance.

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37 Luthans *et al.* (2007) report that subordinates with higher levels of creativity have
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39 better individual performance due to increased cognition and motivation and more positive
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41 behaviors. According to the cited authors, the most creative employees are continually
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43 looking for challenges and striving to meet set targets, thereby producing better performance.
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45 Lim and Gilson (2013) examined the effects of individual and team creativity on employee
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47 performance, and their results show that individual creativity has an inverted U-shaped
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49 relationship with individual performance. In addition, team creativity moderates the
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51 association between individual creativity and individual performance. According to Zhou
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(2003), if conditions are favorable, non-creative employees can be encouraged to develop their creativity to increase their performance.

In view of these findings, the following hypothesis was formulated for the present study:

Hypothesis 4: *Employee creativity is positively related with employees' individual performance.*

2.6 OCB and individual performance

In general, OCB tends to have positive relationships with individual outcomes (Podsakoff *et al.*, 2009). Previous studies have connected OCB with productivity (Podsakoff *et al.*, 1997) and sales performance (Podsakoff and MacKenzie, 1994). Podsakoff and MacKenzie (1994) studied this relationship in 116 branches of a large insurance company, seeking to understand the impacts of three dimensions (i.e., helping behavior, sportsmanship, and civic virtue) on employees' performance. The cited authors' results confirm that all dimensions help explain employee performance.

Dunlop and Lee's (2004) findings also indicate a positive association between OCB and job performance. According to Farooqui (2012), many managers assume OCB is part of their employees' responsibilities, including helping co-workers, actively taking on work beyond their own specific job tasks, identifying problems, or creating new suggestions and innovative ideas for their organization. Prior research has shown that OCB is positively related to favorable evaluations of individuals' overall performance (Podsakoff *et al.*, 2009; Whiting *et al.*, 2008).

OCB is an important behavioral criterion used to measure individual performance. In other words, OCB is thought to improve performance by promoting social and psychological attitudes that contribute to employee performance (Allen *et al.*, 2000). Anvari *et al.* (2015)

confirmed that the OCB dimensions of altruism, conscientiousness, courtesy, sportsmanship, and civic virtues improve employees' performance. Hence, the following hypothesis was proposed for the present research:

Hypothesis 5: OCB is positively related with employees' individual performance.

2.7 Creativity's mediation of the relationship between AL and individual performance

Given the assumption that employee creativity enhances work outcomes (e.g., individual performance), considerable attention needs to be devoted to identifying creativity's antecedents (e.g., AL). For instance, authentic leaders incorporate values, beliefs, and moral principles into their behavior, which influence positively these leaders' relationship with their followers and organizations' climate (Avolio and Gardner, 2005) and, in turn, awakens these employees' creative spirit (Rego *et al.*, 2014) and improves their performance (Lim and Gilson, 2013). The current study's research model thus suggested that the effect of AL in employees' individual performance can be both direct and indirect (e.g., through creativity).

Authentic leaders have characteristics such as persistence, intrinsic motivation (Rego *et al.*, 2012), self-consciousness, and an innovative cognitive style. These can increase followers' willingness to overcome obstacles and look for resources to achieve work goals (Licata *et al.*, 2003). AL can further help employees to present new and useful ideas (Organ and Ryan, 1995), thereby influencing employees' level of creativity (Yan *et al.*, 2011) and enhancing their individual performance (Lim and Gilson, 2013).

In summary, employees need to perceive that their leaders are guided by moral values and standards, as well as being self-aware of their attitudes, openly sharing information, and considering all relevant information before coming to a decision. That is, when followers see their leaders as authentic, the former feel freer and more confident to be creative, and, as a

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3 result, they increase their performance. Thus, the following hypothesis was developed for the
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5 present research:

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7 **Hypothesis 6:** *Creativity mediates the relationship between AL and employees' individual*
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9 *performance.*

10 11 12 13 14 15 16 2.8 OCB's mediation of the relationship between AL and individual performance

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18 AL has a positive impact on OCB, and its dimensions have a positive influence on
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20 employees' individual performance. AL promotes OCB because employees are influenced by
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22 their leader and they are more likely to both adopt behaviors that help their organization and,
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24 consequently, perform better (Avolio *et al.*, 2004; Ilies *et al.*, 2005; MacColl-Kennedy and
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26 Anderson, 2002). The current study's conceptual model thus posited that AL can affect
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28 employees' individual performance both directly and indirectly (e.g., through OCB).

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31 According to Podsakoff *et al.* (2000), a factor that can increase OCB is job
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33 satisfaction. Employees who are more satisfied by their work tend to deal with their tasks in
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35 more responsible and dedicated ways. Job satisfaction is also influenced by AL, that is,
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37 authentic leaders create ties with followers, making them feel more responsible and satisfied
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39 and thus more likely to demonstrate OCB and better performance. Karambayya (1990) also
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41 showed that employees who adopt more OCBs are more satisfied with their job and have
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43 better performance levels.

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46 Avolio *et al.* (2004) argue that, if leaders express feelings of confidence, positive
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48 emotions, and optimism, followers respond with greater commitment and satisfaction with
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50 their work, as well as attributing greater value to their company. Employees also show less
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52 turnover intentions and make an extra effort, consequently producing better performance.
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54 Thus, a positive relationship may exist between AL and employees' performance through the
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3 mediating effect of OCB. The following hypothesis was therefore proposed for the present
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5 study:

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7 **Hypothesis 7:** *OCB mediates the relationship between AL and employees' individual*
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9 *performance.*

10 11 12 13 **3. Method**

14 15 *3.1 Sample and procedures*

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18 The present study gathered a convenience sample that included 177 leader-follower
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20 dyads from 26 private and small and medium-sized organizations operating in Portugal. The
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22 organizations were from different sectors, including office supplies, food, construction, and
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24 automobiles.

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27 The respondents were between 20 and 57 years old (mean = 31.44; standard deviation
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29 [SD] = 7.30), and 55.0% were females. The surveyed individuals' level of education was as
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31 follows: 6.8% had completed 6 years of schooling or less, 63.3% had between 7 and 12 years,
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33 and 29.9% had a higher education degree. Regarding job tenure, followers had been employed
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35 in their organizations for an average of 6.12 years (SD = 4.36 years; minimum = 1 year;
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37 maximum = 25 years). The average contact time of each follower with his or her leader was
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39 5.56 years (SD = 3.96 years; minimum = 1 year; maximum = 23 years).

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42 Data were collected using questionnaires. Several organizations were asked to
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44 collaborate in the data collection process. In the case of positive replies, the individuals in
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46 charge of each organization's work teams and/or departments were identified and invited to
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48 participate in the study voluntarily. The requirement of collecting data from leader-follower
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50 dyads was made clear to each supervisor. If consent was granted, questionnaires were
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52 delivered to leaders and followers by a member of the research team.
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3 A letter accompanied each questionnaire, explaining the research goals and
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5 guaranteeing maximum confidentiality of the data collected and anonymity of respondents.
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7 The instructions explicitly stated that there were no right or wrong answers, and respondents
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9 were asked to answer the questions as honestly as possible. Some instructions were also
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11 provided regarding how to complete the questionnaire and, thus, reduce possible errors. To
12
13 avoid any embarrassment, leaders and followers were asked to complete questionnaires in
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15 separate locations and, upon completion, to place the questionnaires in the envelope provided
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17 and seal it. According to Podsakoff *et al.* (2003), protecting respondents' anonymity and
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19 diminishing evaluation apprehension contribute to reducing lenient, acquiescent, and socially
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21 desirable answers.
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25 Followers were asked to report their perceptions of AL. Leaders were asked to assess
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27 their followers' individual level of creativity, performance, and OCB (i.e., a maximum of six
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29 employees per supervisor). Both questionnaires were pre-tested. Each contained questions
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31 regarding the respondents' age, gender, education, tenure in their organization, and tenure in
32
33 their dyads (i.e., length of time in leader-follower dyads).
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37 38 3.2 Measures

39 40 3.2.1 AL (predictive variable)

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42 AL was measured using the 16 items of the AL Questionnaire (ALQ) developed by
43
44 Walumbwa *et al.* (2008). The Portuguese version used had previously been translated and
45
46 back-translated by Rego *et al.* (2012). The ALQ measures four dimensions:
47

- 48 1) Self-awareness (e.g., "...seeks feedback to improve interactions with others")
- 49 2) Relational transparency (e.g., "...is willing to admit mistakes when they are made")
- 50 3) Internalized moral perspective (e.g., "...makes decisions based on his/her core
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54 beliefs")
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- 4) Balanced processing of information (e.g., "...listens carefully to different points of view before coming to conclusions")

Followers reported the frequency with which their leaders adopted each behavior on a 5-point Likert response scale (1 = "Never" to 5 = "Often, if not always").

Based on relevant studies in the literature on AL (e.g., Rego *et al.*, 2010; Rego *et al.*, 2013; Walumbwa *et al.*, 2008), this variable was considered an overall construct. To obtain a composite AL score, the procedure suggested by Luthans *et al.* (2008) was followed. First, the items for each of the four dimensions were calculated to obtain a composite average for each dimension. Then, the averages for each of the four dimensions were calculated to arrive at a composite AL score for each follower (alpha [α] = 0.94). Higher scores represent perceptions of stronger AL.

3.2.2 Individual creativity (mediator variable)

Employees' creativity was measured using an adapted version of the 13-item scale developed and validated by Zhou and George (2001). The translation of these items into Portuguese followed the standard procedures for translations of research instruments (Brislin and Berry, 1986). A sample item is "... is not afraid to take risks" ($\alpha = 0.98$). Leaders indicated how characteristic the 13 behaviors were of each follower on a 5-point Likert response scale (1 = "Not at all characteristic" to 5 = "Very characteristic").

3.2.3 OCB (mediator variable)

Followers' OCB was measured using 17 items adapted from Konovsky and Organ's (1996) research and later validated by Rego *et al.* (2010) in Portugal. These items measure 5 dimensions:

- 1) Altruism (4 items, e.g., "...helps make others more productive"; $\alpha = 0.94$)

- 2) Sportsmanship (4 items, e.g., "...is able to tolerate occasional inconveniences when they arise"; $\alpha = 0.83$)
- 3) Civic virtue (3 items, e.g., "...stays informed about developments in the company"; $\alpha = 0.89$)
- 4) Conscientiousness (3 items, e.g., "...gives advance notice when unable to come to work"; $\alpha = 0.88$)
- 5) Courtesy (3 items, e.g., "...respects the rights and privileges of others"; $\alpha = 0.72$)

Leaders indicated the degree to which each statement applied to each follower on a 7-point Likert response scale (1 = "Does not apply to this employee at all" to 7 = "Applies to this employee completely").

In order to obtain a composite OCB score, the items for each of the five dimensions were calculated to obtain a composite average for each dimension. Then, the averages for each of the five dimensions were calculated to arrive at a composite OCB score for each employee ($\alpha = 0.94$). Higher scores represent perceptions of higher OCB.

3.2.4 Individual performance (criterion variable)

Followers' individual performance levels were measured using three items adapted from Mackenzie *et al.* (1993). These items were also translated into Portuguese by following the standard procedures for research instrument translation (Brislin and Berry, 1986). A sample item is: "All things considered, this employee is outstanding" ($\alpha = 0.97$). Leaders indicated the degree to which statements applied to each follower on a 7-point Likert response scale (1 = "Does not apply to this subordinate at all" to 7 = "Applies to this subordinate completely").

4. Data Analysis and Results

The data were analyzed using IBM's SPSS software 22.0 version. Table 1 lists the means, SDs, and correlations between variables. Gender correlates positively with education and conscientiousness and negatively with overall AL, with females reporting lower perceptions of their leaders' AL. Age correlates negatively with education and positively with tenure in dyad. Education correlates positively with tenure in dyad, all OCB dimensions, overall OCB, individual performance, creativity, and overall AL. Tenure in dyad also correlates positively with all OCB dimensions, overall OCB, individual performance, creativity, and overall AL. Moreover, all the main variables in the study intercorrelate positively.

Please insert Table 1 here

4.1 Perceived AL as a predictor of OCB, creativity, and individual performance

Table 2 presents the results of regression analyses performed for the five OCB dimensions, overall OCB, creativity, and individual performance—with AL as the predictor variable. These analyses facilitated the testing of the first three research hypotheses.

Please insert Table 2 here

In the first step of the analyses, gender, age, education, and tenure in dyad were set as control variables given that they were correlated with some variables. As can be seen in Table 2 above, age has no statistically significant effects on the variables to be explained. Gender has statistically significant negative effects on sportsmanship (beta [β] = -0.21; $p < 0.05$) and creativity ($\beta = -0.26$; $p < 0.05$). Both follower education and tenure in dyad show significant positive effects on all variable, with β coefficients ranging from 0.25 to 0.46 in the case of education and 0.03 and 0.09 in the case of tenure in dyad. Taken together, the control variables explain a sizable proportion of the variance of OCB, creativity, and individual performance, with adjusted R squared values ranging from 13% up to 28%.

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3 In the second step, AL was added to observe its effects on variables. The results
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5 indicate that AL has a significant positive effect on all variables, increasing the ability to
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7 explain their unique variance from 10% up to 25%. More specifically, AL has a positive
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9 effect on each OCB dimension—altruism ($\beta = 0.81$; $p < 0.000$), sportsmanship ($\beta = 0.52$; $p <$
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11 0.000), civic virtue ($\beta = 0.70$; $p < 0.000$), conscientiousness ($\beta = 0.44$; $p < 0.000$), and
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13 courtesy ($\beta = 0.56$; $p < 0.000$)—as well as on overall OCB ($\beta = 0.61$; $p < 0.000$). AL also
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15 positively impacts follower creativity ($\beta = 0.59$; $p < 0.000$) and individual performance ($\beta =$
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17 0.82 ; $p < 0.000$). Overall, these findings suggest that followers' perceptions of AL lead them
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19 to engage more frequently in OCB, be more creative, and perform better at work, which
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21 provides empirical support for Hypotheses 1, 2, and 3.
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27 *4.2 Creativity as a predictor of individual performance*

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29 Regression analyses were also performed to test Hypothesis 4. As can be seen in Table
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31 3, after controlling for gender, age, education, and tenure in dyad, employees' creativity
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33 explains 42% of the unique variance of individual performance ($\beta = 0.88$; $p < 0.000$).
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35 Hypothesis 4 was thus supported.
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38 *Please insert Table 3 here*

39 40 41 42 *4.3 OCB as a predictor of individual performance*

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44 Similar analyses were conducted to examine OCB's effect on individual performance.
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46 The five OCB dimensions were entered into the analyses as predictors, and socio-professional
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48 variables were set as controlled variables. Table 4 presents the results obtained, according to
49
50 which only altruism ($\beta = 0.49$; $p < 0.000$), civic virtue ($\beta = 0.31$; $p < 0.000$), and
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52 conscientiousness ($\beta = 0.35$; $p < 0.000$) significantly affect individual performance.
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Sportsmanship ($\beta = -0.04$; nonsignificant [n.s.]) and courtesy ($\beta = 0.11$; n.s.) have no statistically significant effect on individual performance at work.

Please insert Table 4 here

Taken together, OCB dimensions explain 68% of the unique variance of individual performance. These results indicate that those followers who show higher altruism, civic virtue, and conscientiousness are also those who carry out their functions more competently. Since only some of the dimensions of OCB, but not all, explain individual performance, Hypothesis 5 received only partial support.

4.4 Creativity as a mediator of the relationship between AL and individual performance

To test Hypothesis 6, Baron and Kenny's (1986) procedure for mediation analysis was followed and complemented with Sobel's (1982) test. Table 5 presents the results obtained, which suggest that creativity ($\beta = 0.74$; $p < 0.000$) partially mediates the effect of AL ($\beta = 0.38$; $p < 0.000$) on individual performance. Thus, perceptions of AL appear to encourage employees to be more creative at work and, subsequently, to achieve better job performance levels. The results for Sobel's (1982) test support the existence of a partial mediation effect ($z = 6.81$; $p < 0.05$). The full model explains 64% of the unique variance of individual performance. Hypothesis 6 was thus empirically supported.

Please insert Table 5 here

4.5 OCB as a mediator of the relationship between AL and individual performance

The same analytical procedure was followed to test Hypothesis 7. As can be seen in Table 6, followers' altruism ($\beta = 0.48$; $p < 0.000$; $z = 8.95$; $p < 0.05$), civic virtue ($\beta = 0.31$; $p < 0.000$; $z = 7.79$; $p < 0.05$), and conscientiousness ($\beta = 0.26$; $p < 0.000$; $z = 4.90$; $p < 0.05$) fully mediate the effect of AL ($\beta = 0.08$; n.s.) on individual performance. Sportsmanship ($\beta =$

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3 -0.05; n.s.) and courtesy ($\beta = 0.19$; n.s.) again have no statistically significant effect on
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5 individual performance.

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7 *Please insert Table 6 here*

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9 Thus, perceptions of AL appear to motivate followers to show more altruism, civic
10 virtue, and conscientiousness at work, and this, subsequently, leads them to achieve better
11 levels of job performance. The full model explains 86% of the unique variance of individual
12 performance. However, since only some OCB dimensions mediate the relationship between
13 AL and individual performance, Hypothesis 7 received only partial support.
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22 **5. Discussion and Conclusions**

23 *5.1 Main findings*

24 *5.1.1 AL perceptions as a predictor of OCB, creativity, and individual performance*

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29 The findings show that AL has a positive impact on OCB (i.e., altruism,
30 sportsmanship, civic virtue, conscientiousness, and courtesy), employee creativity, and
31 individual performance. The positive effect of AL on OCB confirmed by the present study is
32 consistent with the results reported by previous researchers (e.g., Avolio *et al.*, 2004; Joo and
33 Jo, 2017; Kernis, 2003; Walumbwa *et al.*, 2007; Zaabi *et al.*, 2016). These state that
34 perceptions of employees regarding leaders' authenticity influence followers' willingness to
35 engage in OCB. That is, when employees regard their leaders as being authentic and creating
36 a positive, transparent, and fair work environment, workers tend to reciprocate with higher
37 levels of OCB.
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49 The current study's results indicate that AL has a positive influence on employees'
50 creativity, which is also in line with past research (e.g., Banks *et al.*, 2016; Černe *et al.*, 2013;
51 Li *et al.*, 2014; Rego *et al.*, 2014; Zhou *et al.*, 2014). Authentic leaders contribute to
52 developing open, truthful relationships with their followers, thereby stimulating positive
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3 psychological states that produce wellbeing at work and promoting work environments in
4 which creativity is fostered and encouraged. Hence, when followers perceive AL, they feel
5 more confident, flexible, and original—in other words, more creative.
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9 Finally, the present findings are congruent with prior studies indicating a positive
10 association exists between AL and individual performance (Clapp-Smith *et al.*, 2009;
11 Walumbwa *et al.*, 2011). Authentic leaders emphasize employees' talents and strengths,
12 promote followers' development, and, consequently, improve their performance. The current
13 study's results thus suggest that followers' perceptions of AL lead them to engage more
14 frequently in OCB, become more creative, and perform better at work.
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24 *5.1.2 Creativity as a predictor of individual performance*

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26 The findings also indicate that creativity promotes employees' individual performance,
27 which is consistent with other studies (Gilson, 2008; Lim and Gilson, 2013; Luthans *et al.*,
28 2007). A creative employee has the independence, confidence, and awareness to take
29 reasonable risks, producing greater flexibility and openness to new experiences and,
30 consequently, higher individual performance. Employees with higher levels of creativity have
31 better individual performance due to increased cognition, motivation, and positive behavior
32 (Luthans *et al.*, 2007). Creative employees are continually looking for challenges, striving to
33 meet set targets, and thereby increasing their performance.
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45 *5.1.3 OCB as a predictor of individual performance*

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47 According to the results obtained in the present study, OCB has a positive effect on
48 employees' individual performance, which confirms previous studies' findings (Dunlop and
49 Lee, 2004; Podsakoff *et al.*, 1997; Podsakoff *et al.*, 2009; Whiting *et al.*, 2008). However, the
50 current findings reveal that only altruism, civic virtue, and conscientiousness influence
51 individual performance. Sportsmanship and courtesy have no statistically significant effect on
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2 individual performance. This may indicate that, when employees are mindful of how their
3 actions affect co-workers (i.e., courtesy) and tolerate the inconveniences and annoyances of
4 organizational life without complaining and filing grievances (i.e., sportsmanship), these
5 OCBs do not influence these individuals' performance. Altruism, civic virtue, and
6 conscientiousness have a comparatively greater effect.
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13 The latter may thus imply more active behaviors. Those employees who are more
14 altruistic help co-workers with organizationally relevant tasks or problems. Individuals
15 exhibiting civic virtue participate in their organizations' political processes (e.g., contribute to
16 discussions or get involved in organizational activities). Conscientious employees engage in
17 behaviors that go beyond minimal requirements, such as punctuality, housekeeping, resource
18 conservation, and above average work attendance. These behaviors are also characteristic of
19 those who carry out their job functions better.
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28 *5.1.4 Creativity and OCB as mediators of the relationship between AL and individual* 29 *performance* 30 31 32

33 The results obtained suggest that creativity mediates the effect of AL on individual
34 performance. This mediation is only partial because other mechanisms (e.g., OCB) can also
35 influence the relationship between perceptions of AL and individual performance. Authentic
36 leaders have characteristics that influence positively relationships with followers and their
37 work environment. Followers feel freer and more confident to be creative, and, as a result,
38 they improve their performance. Thus, perceptions of AL appear to motivate employees to be
39 more creative at work and, subsequently, to achieve better job performance.
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48 This study's results also suggest that OCB mediates the effect of AL on individual
49 performance. Employees' altruism, civic virtue, and conscientiousness fully mediate the
50 effect of AL on individual performance, but sportsmanship and courtesy do not have a
51 statistically significant effect on individual performance. Thus, perceptions of AL apparently
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inspire employees to show more altruism, civic virtue, and conscientiousness at work, so this leads them to achieve better levels of job performance.

In summary, authentic leaders promote employees' positive behaviors. These include helping co-workers, participating in organizational activities, and actively taking on tasks outside their specific job definition, as well as developing new suggestions and creative ideas—in other words, bettering their performance.

5.2 Theoretical contributions

From a theoretical perspective, the present study confirms the results of prior studies that found positive effects of perceived AL on employees' work output, including creativity (Banks *et al.*, 2016; Li *et al.*, 2014; Rego *et al.*, 2014), OCB (Joo and Jo, 2017; Zaabi *et al.*, 2016) and individual performance (Clapp-Smith *et al.*, 2009; Walumbwa *et al.*, 2011). Therefore, the current results support theoretical findings that suggest the quality of work environments leaders create may play an important role in the extent to which employees develop positive behaviors and a creative spirit.

This study answers the call for further empirical research from those who have argued that more information is needed to understand fully the mechanisms through which AL influences employees' performance and to expand the nomological network for AL (Avolio and Mhatre, 2012; Leroy *et al.*, 2012). Cooper *et al.* (2005) emphasize the importance of emerging areas such as AL theory and stress that researchers need to pay careful attention to identifying significant construct outcomes. To date, few studies have examined AL's relationships with creativity, OCB, and individual performance, so the present research sought to integrate these four key constructs into a single conceptual model. In particular, the mediating role of creativity and OCB in the relationship between AL and employees'

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2 individual performance remains underexplored in the literature. Therefore, this study
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4 addressed significant research gaps by testing the relevant variables' mediating effects.
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7 As a result, this study's findings provide a more comprehensive understanding of how
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9 AL can relate to individual performance through creativity, as well as of OCB's mediating
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11 role. Furthermore, as compared with previous research, the current results were obtained
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13 using a more rigorously empirical methodology that included collecting data from two
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15 sources (i.e., dyads of leaders and followers).
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20 *5.3 Managerial implications*

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22 From a practical perspective, this study's findings show the importance of how leaders
23
24 influence their followers. Practitioners looking to increase employee creativity, OCB, and
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26 performance can do so by enhancing their AL, while organizations can encourage managers
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28 to become more authentic in their leadership styles.
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31 These research outcomes have important practical implications for leaders, which can
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33 be summarized, in part, as follows. First, leaders should give their followers the freedom to
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35 choose what actions they take because this is vital to developing their creativity and job
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37 performance. Second, by seeking out different opinions and visions, managers can be better
38
39 informed in their decision making. Third, leaders need to admit mistakes that they have made
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41 and encourage followers to do the same. Fourth, managers should develop channels of
42
43 multisource feedback that offer anonymous advice from superiors, peers, and followers. Fifth,
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45 leaders need to take the time to recognize their followers' values and beliefs and guarantee
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47 that job requirements are congruent with these principles. Sixth, managers should seek to
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49 become more aware of their own moral weaknesses when pressured by external influences.
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51 Last, leaders need to motivate, guide, and give their followers all the support they require to
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53 become more creative and productive, as well as better organizational citizens.
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3 From the perspective of human resources management, managers should pay more
4 attention to how they select leaders. The hiring process could include evaluating managers'
5 performance by paying attention to the authenticity of their behaviors. Organizations can also
6 prepare ways to promote authenticity in leaders through training, coaching, and mentoring
7 programs. Further, to improve employees' performance, human resources management
8 practices should be developed to stimulate creativity and OCB among employees.
9 Specifically, it is important to implement mechanisms to monitor and recognize employee's
10 creativity and additional efforts in activities that extend beyond normal expectations.
11 Therefore, organizational systems such as compensation and promotion may be aligned with
12 that. All these interventions should take into account the context in which leaders and
13 followers interact (Avolio, 2007), including the organizational culture of the company. This
14 should value the authenticity in the relationships between all organizational members and the
15 development of AL processes.

31 32 33 *5.4 Limitations and future studies*

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35 The present study was subject to some limitations that indicate opportunities for future
36 research. The first limitation was convenience sampling, which limits the generalizability of
37 the results. Future research along these lines needs to obtain larger, more diversified samples
38 to achieve better generalizability. In addition, this study was based on a cross-sectional
39 design, so any causal influences suggested by the findings cannot be treated as conclusive. To
40 examine causal relationships, a longitudinal or experimental design would be needed to
41 ensure a deeper understanding, which suggests the need to conduct further research in this
42 field.

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44 The respondents in this study are from a single country. Future studies could investigate if the
45 current conclusions can be replicated for other nationalities, taking a more cross-cultural

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3 approach to the issues in question and considering the broader cultural context in which
4
5 leaders and followers interact (Avolio, 2007). The studies on AL developed so far in different
6
7 national cultures suggest that the AL construct has a cultural equivalence (e.g., Caza *et al.*,
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9 2010; Walumbwa *et al.*, 2008), but more research using multi-culture data is needed to fully
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11 demonstrate this (Caza *et al.*, 2010).
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14 The research also included two mediating variables, but others are also plausible. For
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16 example, authentic leaders may stimulate followers' hope, optimism, resilience, and
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18 happiness, which, in turn, increase employee performance.
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21 Further research may be needed to analyze other relevant dependent variables with
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23 negative effects on employees' performance, such as stress, burnout, or turnover. Future
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25 studies could also test the incremental validity of AL theory for other positive forms of
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27 leadership such as shared, transformational, ethical, empowering, and leader-member
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29 exchange leadership. Despite the above limitations, this study's findings contribute
30
31 significantly to expanding the field of positive organizational research, thereby deepening the
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33 understanding of the influence of AL on employees' behavior and performance and opening
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35 up new avenues of research.
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39 5.5 Concluding remarks 40

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42 The study responds to a call by researchers who have argued that more empirical
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44 research is needed to understand fully the mechanisms through which AL influences
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46 employees' performance and other outcomes and to expand the nomological network for AL
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48 (Arda *et al.*, 2016; Avolio and Mhatre, 2012; Gardner *et al.*, 2011; Leroy *et al.*, 2012;
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50 Mubarak and Noor, 2018). This research also represents an important opportunity for
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52 legitimizing the authenticity in leadership, in both the scholarly and practitioner context.
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54 Although AL is seen as a core value in itself, without empirically demonstrated pragmatic
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3 outcomes, it is less likely to obtain attention in both contexts. Considering that creativity and
4
5 OCB promote employees' performance, our study suggests that acting authentically, leaders
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7 are more able to stimulate important outcomes, such as, creativity, OCB and performance.
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Figure 1. Research model

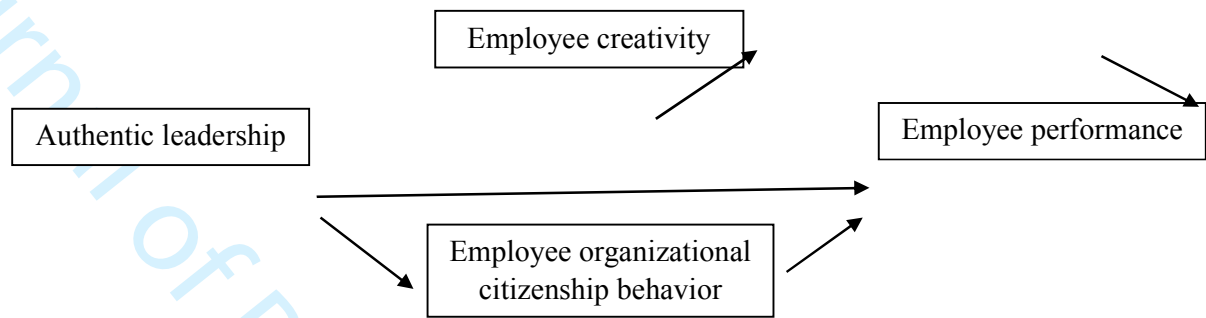


Table 1: Ms, SDs, and correlations between variables

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender ^a	-	-	-											
2. Age	31.44	7.30	-0.9	-										
3. Education ^b	2.46	0.56	0.19*	-0.25**	-									
4. Tenure in dyad	5.56	3.98	-0.03	0.41***	0.18*	-								
5. Altruism	5.71	1.10	-0.03	0.05	0.33***	0.38***	-							
6. Sportsmanship	5.93	0.89	-0.05	0.01	0.42***	0.36***	0.76***	-						
7. Civic virtue	5.66	1.10	-0.00	0.16	0.44***	0.40***	0.88***	0.77***	-					
8. Conscientiousness	6.01	0.89	0.14*	-0.01	0.34***	0.20**	0.68***	0.57***	0.70***	-				
9. Courtesy	5.92	0.88	-0.03	0.06	0.47***	0.31***	0.82***	0.72***	0.82***	0.73***	-			
10. Individual performance	5.65	1.14	0.07	0.07	0.31***	0.37***	0.90***	0.70***	0.87***	0.76***	0.80***	-		
11. Creativity	3.87	0.94	-0.10	0.01	0.30***	0.37***	0.79***	0.76***	0.81***	0.53***	0.71***	0.76***	-	
12. Overall AL	4.02	0.71	-0.20**	0.12	0.13*	0.29***	0.60***	0.52***	0.55***	0.37***	0.53***	0.56***	0.54***	-
13. Overall OCB	5.84	0.87	0.02	0.03	0.45***	0.37***	0.93***	0.85***	0.94***	0.82***	0.91***	0.91***	0.81***	0.58***

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ^a 0 = male; 1 = female. ^b 1 = 6 or less years of education; 2 = 7 to 12 years of education; 3 = higher education. AL and creativity = 5-point response scale; OCB and individual performance = 7-point response scale.

Table 2: Hierarchical regression analyses: how AL predicts OCB, creativity, and individual performance (standardized coefficients)

		Altruism	Sportsmanship	Civic virtue	Conscientiousness	Courtesy	Overall OCB	Creativity	Individual performance
First step	Age	-0.03	-0.01	-0.01	0.00	0.01	0.00	-0.01	0.00
	Gender ^a	-0.16	-0.21*	-0.14	0.15	-0.19	-0.11	-0.26*	0.09
	Education ^b	0.33***	0.37***	0.46***	0.30***	0.46***	0.38***	0.25**	0.30**
	Tenure in dyad	0.09***	0.07***	0.09***	0.03*	0.04*	0.07***	0.08***	0.09***
	F	11.94***	16.30***	18.47***	7.32***	17.41***	17.50***	11.56***	10.49***
	R ² adj	0.20	0.26	0.28	0.13	0.27	0.27	0.19	0.18
Second step	Age	-0.01	-0.01	-0.01	0.00	0.01	0.00	-0.01	0.00
	Gender ^a	0.08	-0.06	0.07	0.28*	-0.03	0.07	-0.09	0.33*
	Education ^b	0.25**	0.32***	0.39***	0.25***	0.41***	0.32***	0.19**	0.22**
	Tenure in dyad	0.06**	0.05**	0.06**	0.01	0.01	0.04**	0.06	0.06**
	Overall AL	0.81***	0.52***	0.70***	0.44***	0.56***	0.61***	0.59***	0.82***
	F	28.78***	25.25***	31.22***	11.56***	29.47***	34.38***	21.43***	24.87***
	R ² adj	0.44	0.41	0.46	0.23	0.45	0.49	0.37	0.40
R ² change	0.24	0.25	0.18	0.10	0.18	0.22	0.18	0.12	

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ^a 0 = male; 1 = female. ^b 1 = 6 or less years of education; 2 = 7 to 12 years of education; 3 = higher education. F = value; R² adj = R-squared adjusted.

Table 3: Hierarchical regression analyses: how creativity predicts individual performance (standardized coefficients)

		Individual performance
First step	Age	0.00
	Gender ^a	0.09
	Education ^b	0.30**
	Tenure in dyad	0.09***
	F	10.49***
	R ² adj	0.18
Second step	Age	0.01
	Gender ^a	0.32**
	Education ^b	0.09
	Tenure in dyad	0.02
	Creativity	0.88***
	F	53.84***
	R ² adj	0.60
R ² change	0.42	

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ^a 0 = male; 1 = female. ^b 1 = 6 or less years of education; 2 = 7 to 12 years of education; 3 = higher education.

Table 4: Hierarchical regression analyses: how five dimensions of OCB predict individual performance (standardized coefficients)

		Individual performance
First step	Age	0.00
	Gender ^a	0.09
	Education ^b	0.30**
	Tenure in dyad	0.09***
	F	10.49***
	R ² adj	0.18
Second step	Age	0.00
	Gender ^a	0.19**
	Education ^b	-0.11*
	Tenure in dyad	0.01
	Altruism	0.49***
	Sportsmanship	-0.04
	Civic virtue	0.31***
	Conscientiousness	0.35***
	Courtesy	0.11
	F	122.06***
	R ² adj	0.86
R ² change	0.68	

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ^a 0 = male; 1 = female. ^b 1 = 6 or less years of education; 2 = 7 to 12 years of education; 3 = higher education.

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Table 5: Hierarchical regression analyses: how creativity mediates effect of AL on individual performance (standardized coefficients)

		Individual performance
Third step	Age	0.01
	Gender ^a	0.39***
	Education ^b	0.08
	Tenure in dyad	0.01
	Overall AL	0.38***
	Creativity	0.74***
	F	52.50***
	R ² adj	0.64
	R ² change	0.24

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ^a 0 = male; 1 = female. ^b 1 = 6 or less years of education; 2 = 7 to 12 years of education; 3 = higher education.

Table 6: Hierarchical regression analyses: how OCB mediates effect of AL on individual performance (standardized coefficients)

		Individual performance
Third step	Age	0.00
	Gender ^a	0.20**
	Education ^b	-0.11*
	Tenure in dyad	0.01
	Overall AL	0.08
	Altruism	0.48***
	Sportsmanship	-0.05
	Civic virtue	0.31***
	Conscientiousness	0.26***
	Courtesy	0.09
	F	0.64
	R ² adj	0.24
	R ² change	0.46

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ^a 0 = male; 1 = female. ^b 1 = 6 or less years of education; 2 = 7 to 12 years of education; 3 = higher education.