The Impact of Arts-Based Leadership Development on Leader Mind-Set: A Field Experiment

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Abstract
The Problem.
Arts-based leadership interventions have gained a foothold in the leadership development literature; however, few studies have investigated their effectiveness. These interventions include music, drama, art, and performance and are utilized to develop dimensions of leader mind-set.

The Solution.
In this study, an arts-based intervention (leadership drawing exercise) is evaluated. Utilizing a quasi-experimental, pre-test, post-test design, we evaluate the impact of an arts-based intervention on four dimensions of leader mind-set: emotional intelligence, leader identity, openness to experience, and feedback orientation. Leaders in the arts-based intervention showed significantly greater improvement in emotional intelligence, leader identity, and feedback orientation.

The Stakeholders.
This article informs leadership development researchers, those making decisions about investment in leadership development and those who deliver leadership development. The article will be of interest to organizations that have to justify investment in leadership development.

Keywords
arts-based leadership interventions, emotional intelligence, leader identity, openness to experience and feedback orientation

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Introduction

Leadership development is a major field of academic study and set of organizational practices (Day, Fleenor, Atwater, Sturm, & McKee, 2014; Kempster & Stewart, 2010). Formal leadership development interventions are typically advocated on the basis that they “can raise consciousness, change behavior and transform managers into leaders” (Allio, 2005, p. 1072). Organizations implement conventional interventions (Jones, 2005; Mintzberg, 2004) that teach participants about leadership concepts, leadership theories, and the characteristics of effective leadership and develop the skills/behaviors required to lead effectively (Kouzes & Posner, 2002; McCauley & Van Velsor, 2004).

Conventional interventions have significant weaknesses (Jackson & Parry, 2008). They place too much emphasis on the development of standardized skill set, they over rely on standard tools and ready-made solutions, and they do not replicate the work environment where leaders practice leadership skills. Mintzberg (2005) suggested that conventional interventions are dehumanizing because of the fallacy that effective leadership consists solely of applying rules and formulas to address complex leadership situations. Conventional interventions can enhance leader satisfaction (Lee & Cummings, 2008), and enhance influence skills (Battilana, Gilmartin, Sengul, Pache, & Alexander, 2010) and well-being (Lee et al., 2010); however, the evidence is overall inclusive.

Researchers and practitioners have begun to question how organizations develop their leaders. First, an increased emphasis is given to mind-set development (Ladkin, 2010). This brings to the fore important personal characteristics such as emotional intelligence, leader identity, openness to experience, and feedback orientation. These personal characteristics are malleable and teachable and can enhance leadership effectiveness (Krasman, 2010). Second, there is a growing interest in arts-based methods of leadership development (Barry & Meisiek, 2010; Sutherland, 2013). Arts-based interventions introduce leaders to different forms of art such as literature, drama, music, and drawing (Springborg, 2012; Sutherland & Purg, 2010) to help them learn experientially by “transforming aesthetic experiences to develop non-rational, non-logical capabilities and self-knowledge that constitutes and cultivate experiential knowing, aesthetic awareness and in general the so called soft issues of managing and leading” (Sutherland, 2013, p. 2). Schyns, Tymon, Kiefer, and Kerschreiter (2013) proposed the leadership drawing exercise as one example of an arts-based method and argued that it helps participants to “engage in a personal and group exploration of what it means to be a leader” (p. 3).

Research on the effectiveness of arts-based methods is sparse. The few studies have focused on the content of the drawings and what they say about how leaders think about the nature and process of leadership. We are not aware of any study that has investigated how they contribute to the development of specific aspects of mind-set. It is to our knowledge, the first study that evaluates an arts-based intervention in experimental conditions.
Theoretical Background

Arts-Based and Conventional Leadership Development Interventions

We first consider the characteristics of arts-based interventions and how they differ from conventional interventions.

Learning objectives. Conventional interventions emphasize instrumental and behaviorally focused learning objectives (Romanowska, Larsson, & Theorell, 2013; Storey, 2004) such as explaining the process of leadership, and providing participants with a repertoire of techniques, tools, and solutions to manage in a variety of leadership situations (Garavan, Hogan, & Cahir-O’Donnell, 2009). Allio (2005) suggested that they provide leaders with the skills on how to lead and get participants to practice these skills.

Arts-based intervention focus on developing “individuals reflexively and increasing their repertoire of responses to organizational phenomena” (Wicks & Rippin, 2010, p. 262). They develop aesthetic awareness, which helps leaders to develop intellectual and emotional tools that will complement the instrumentality of conventional leadership programs (Bathurst, Jackson, & Statler, 2010). They have “no instrumental intentions, no specific messages, and no ready-made solutions” (Romanowska et al., 2013, p. 1016).

Focus and learning processes. Conventional interventions focus primarily on the individual leader with little consideration of followers (Day, 2001). Arts-based interventions emphasize the leader and followers or what Epitropaki, Sy, Martin, Tram-Quon, and Topakas (2013) called developing leader awareness about the “expectations of their leadership context” (p. 816). Arts-based methods bring to the fore the relational context of the leader; however, they may be limited to contexts where leaders (a) have a strong conscious awareness of their leadership behaviors, (b) are sufficiently motivated, and (c) have opportunities to control their behavior.

Although leaders are continually challenged by rapid change, conventional interventions emphasize single-loop learning (Argyris, 2004), or learning that focuses on leaders making incremental rather than transformative adjustments. Leaders are increasingly required to change their assumptions and thinking about leading in organizations. Arts-based leadership interventions focus on double-loop learning (Schyns et al., 2013). They “trigger emotions and emotions can enhance learning” (Taylor & Ladkin, 2009, p. 20). They fuse the reflections of leaders as starting points rather than emphasizing established leadership models (Lord & Hall, 2005).

Learning methods. They both implement a different pedagogic approach and use different learning methods. Conventional interventions typically utilize didactic, instructor-led, content-driven methods such as lectures, case studies, group discussions, methods that focus on the application of concepts to the workplace, and skill practice (Garavan et al., 2009). They place particular emphasis on practicing “. . . newly learned behavior and knowledge” (Romanowska et al., 2013, p. 1016).
Arts-based interventions utilize “. . . methods, performance and/or artefacts borrowed for the arts for the declared purpose of improving managers’ performance” (Parush & Koivunen, 2014, p. 106). They emphasize performative experiences where participants engage in activities with a strong design, creation, and performance emphasis (Schyns, Kiefer, Kerschreiter, & Tymon, 2011). The leadership drawing exercise can help leaders develop an understanding of how “leader and follower prototypes are developed and shaped” (Epitropaki et al., 2013, p. 876). It presents participants with a “disorienting dilemma,” a dilemma that may take multiple forms and lead to a realization that a particular image of a leader is not the norm. Romanowska et al. (2013) suggested that arts-based learning methods help leaders to liberate their “. . . perceptions and sensations” (p. 1017). Participants are stretched in terms of intellectual, aesthetic, and emotional engagement and the level of tension and surprise is high (Barry & Meisiek, 2010). They place heavy relevance on analogical reasoning and experience and they purposefully help leaders engage with objects and or performances that “. . . are analogically related to day to day life” (p. 106).

**Developing Leader Mind-Set**

We focus on four dimensions of leader mind-set as outcomes of leadership development.

**Emotional intelligence.** The first dimension of mind-set—emotional intelligence—is central to effective leadership (Iles & Preece, 2006). Ashkanasy and Tse (2000) argued that the reason to select for and develop the emotional intelligence of leaders is related to their effectiveness in influencing followers. Slaski and Cartwright (2003) found that a 4-day leadership development program resulted in higher trait emotional intelligence. Groves, McEnrue, and Shen (2008) evaluated an 11-week information-based program on emotional intelligence and found significantly higher post-program emotional intelligence scores. Kirk, Schutte, and Hine (2011) found similar results.

**Leader identity.** The second mind-set dimension—leader identity—plays a significant role in influencing leadership effectiveness. A strong or fully developed leader identity helps a leader to be confident in decision making, be skilled in handling unpredictable situations, and be more effective in interpersonal communications (Day, Harrison, & Halpin, 2009). The development of leader identity is influenced by (a) openness to experience and change, (b) strong social support, (c) opportunities to develop, and (d) the strength of the outcomes of previous development activities (Bosma & Kunnen, 2001). Leadership development helps leader identity through (a) broadening a leader’s view of leadership, (b) the development of self, and (c) changing a leaders view of self with others (Komives, Owen, & Longerbeam, 2005). Muir and Zheng (2012) theorized that leadership development helps leaders to take responsibility for and step up to challenges, to work through other people, to articulate a clear vision of leadership, and to develop confidence in taking on a leadership role.
**Openness to experience.** The third dimension of mind-set—openness to experience—captures the extent to which individuals are curious, imaginative, broad-minded, and original (McCrae, 1987). These characteristics have important implications for leadership behavior in that leaders will show a stronger preference for new and varied experiences and will be open to ideas from their team. Blickle et al. (2013) suggested that openness to experience consists of two dimensions: inquisitiveness and learning approach. The dimension learning approach is related to maximizing the outcomes of development activities. J. Hogan and Holland (2003) argued that learning approach is more predictive of continuous learning behavior. Leaders who are more open to experience are more likely to engage with challenging development activities and development as part of day-to-day experience. It helps leaders to transform into continuous self-developers (Reichard & Johnson, 2011).

**Feedback orientation.** The fourth dimension of mind-set—feedback orientation—emphasizes a leader’s receptivity to feedback (London & Smither, 2002). It consists of the following dimensions: (a) comfort with feedback, (b) the tendency to seek feedback and process it mindfully, and (c) the likelihood of acting on feedback and performance improvement. Feedback represents an important individual resource that helps leaders to be effective leaders (Ashford & Cummings, 1983). How leaders react to feedback impacts the effectiveness of leadership development and is an outcome of leadership development. Feedback orientation is important to the implementation of behavioral change (Linderbaum & Levy, 2010). Leaders with a strong feedback orientation are more likely to demonstrate positive reactions to feedback from others and to act on feedback (Braddy, Sturm, Atwater, Smither, & Fleenor, 2013).

**Method**

**Participants**

One hundred and sixty-four leaders from a large pharmaceutical MNC participated in the study. Eighty-six leaders completed the arts-based intervention and 78 completed the conventional intervention. Initially, we recruited 196 leaders of which 184 agreed to take part in the study. One hundred and sixty-four leaders provided complete data sets at both Time 1 (2 weeks prior to both interventions) and Time 2 (6 months after completion of both interventions). Twenty participants did not provide Time 2 data. Attrition analysis conducted separately for both groups showed no significant differences in the baseline measures of emotional intelligence, leader identity, openness to experience, and feedback orientation between those who participated at both data collection points and those who completed baseline collection data only. We experienced higher attrition rates for the conventional group (n = 14) compared with the arts-based group (n = 6).

Sixty-two percent of participants were male and 60% were at senior management level. All participants had a minimum of a diploma level qualification. The mean age of participants was 35 years, the mean organizational tenure was 12.75 years, and the
mean years in a leadership role was 8.58 years (Table 1). Chi-square analysis indicated that both intervention groups did not differ significantly in gender, education, and leadership level. We conducted t-test analysis to investigate differences in age and years in the organization. We found no significant differences on these variables. We did however find significant difference between both groups on years of leadership experience ($p = .041$).

**Procedure**

We utilized a quasi-experimental, pre-test, post-test design with both intervention groups. To ensure that participants from both groups had a similar pre-intervention understanding of leadership, we provided participants with an initial 2-day workshop. Participants were randomly allocated to one of the two leadership development interventions. They could refuse participation if they did not accept random allocation. We did not inform participants of the content of either intervention and we provided each group with the same detail on the purpose of the study. We matched the gender, age, and leadership level for 92 pairs of participants. We then randomized the members of each pair to one of the two intervention groups.

### Table 1. Mean and SDs of Pre-Intervention Variables for the Two Intervention Groups.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intervention (drawing; $N = 86$)</th>
<th>Intervention (conventional; $N = 78$)</th>
<th>$M$ difference</th>
<th>$p$ value of diff. test</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>34.7</td>
<td>36.7</td>
<td>2.0</td>
<td>.104</td>
</tr>
<tr>
<td>Years in leadership</td>
<td>8.21</td>
<td>8.95</td>
<td>0.74</td>
<td>.041</td>
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<tr>
<td>Organizational tenure</td>
<td>12.95</td>
<td>12.55</td>
<td>0.40</td>
<td>.498</td>
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<tr>
<td>Emotional intelligence</td>
<td>3.89</td>
<td>4.22</td>
<td>0.33</td>
<td>.019</td>
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<tr>
<td>Leader identity</td>
<td>3.45</td>
<td>3.49</td>
<td>0.05</td>
<td>.745</td>
</tr>
<tr>
<td>Openness to experience</td>
<td>3.99</td>
<td>3.36</td>
<td>0.63</td>
<td>.0001</td>
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<tr>
<td>Feedback orientation</td>
<td>3.71</td>
<td>3.47</td>
<td>0.24</td>
<td>.005</td>
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<tr>
<td>Gender</td>
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<tr>
<td>Male</td>
<td>51</td>
<td>51</td>
<td>65</td>
<td>.422</td>
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<tr>
<td>Female</td>
<td>35</td>
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Note. Differences between the groups were tested via two-tailed, non-directional, independent sample $t$ tests or chi-square analyses. SD = standard deviation.
The Intervention

**Drawing—The arts-based intervention.** We followed the methodology proposed by Schyns et al. (2011). Prior to implementation, we provided participants with no information on its structure and content. The arts-based intervention consisted of explaining the three components of the leadership theories drawing exercise. Component 1 consisted of individual reflection (10 min) where each participant had to think about leaders in general and consider two questions: What characteristics do they have? What do they do and what do they not do? Component 2 consisted of group discussions and the drawing exercise (30 min each). Each group of participants interviewed each other and identified what they agreed/disagreed on. They then addressed these questions: What are the factors that affect leaders’ effectiveness? How are your views about leaders rooted in culture? What are the possible reasons for the agreements/disagreements? In groups of five participants, each group made a drawing of your “leader.” In Component 3 (5-10 min each group), each group presented their drawing and answered questions, one group at a time. They then discussed the following questions: What are the similarities/differences between the drawings? How effective would the leader of one group be in the context of another group? What is the role of followers in these drawings?

**Conventional intervention.** The conventional intervention consisted of three components. Component 1 consisted of a lecture (60 min), a group discussion with the whole group (40 min), reflection in smaller groups (40 min), and a summary. Component 2 consisted of a case study (80 min) followed by a whole-group discussion (40 min). Component 3 consisted of a small-group discussion and the identification of practice guidelines for effective leadership back in the workplace. The program covered the typical spectrum of leadership topics such as theories of leadership, leadership effectiveness, team leadership, and the skills of effective leadership.

Measures

We measured the four outcomes at both Times 1 and 2 for both interventions. We measured all constructs using a 5-point, Likert-type scale. Higher mean scores indicate higher levels of the construct. Demographic information (i.e., age, gender, education level, leadership level, etc.) were also collected.

**Emotional Intelligence**

We measured emotional intelligence using a 16-item scale developed by Wong and Law (2002). Sample items include “I always know whether or not I am happy” and “I am able to control my temper and handle difficulties rationally.” Cronbach’s alpha for the scale for the drawing and conventional groups were .84 and .89, respectively.
Leader Identity

We measured leader identity using a 16-item scale developed by Hiller (2005). Participants were asked to indicate their agreement with their descriptiveness, certainty, and importance. Sample items include “I see myself as a leader” and “Leadership happens when people collaborate. Leadership involves a group collectively making decisions.” Cronbach’s alphas for the total scale for the drawing and conventional groups were .89 and .91, respectively.

Openness to Experience

We measured openness to experience using a 10-item learning approach scale developed by R. Hogan and Hogan (2007). Sample items include “I am quick to understand things” and “I can handle a lot of information.” The Cronbach’s alphas for the drawing and conventional groups were .84 and .83, respectively.

Feedback Orientation

We measured feedback orientation using a 24-item scale developed by Linderbaum and Levy (2010). This scale measures four dimensions of feedback orientation: utility, accountability, social awareness, and feedback self-efficacy. Sample items include “To develop my skills at work I rely on feedback” and “I feel self-assured when dealing with feedback.” The Cronbach’s alphas for the drawing and conventional groups were .82 and .87, respectively.

Results

Table 2 presents the intercorrelations for the study variables. Prior to testing for relationships, we conducted a series of tests to establish initial equivalence between the two experimental conditions. For initial equivalence, we neither found statistically significant differences on any demographic variable (age, gender, organizational, and leadership tenure) nor did they differ on leader identity. However, the conventional group did report significantly higher levels of emotional intelligence, whereas the leadership drawing intervention group reported significantly higher openness to experience and feedback orientation scores (see Table 1). Because our four outcomes were significantly intercorrelated with one another, we tested the impact of the two interventions utilizing ANCOVA to more accurately identify the impact of the arts-based intervention on the four outcomes. To conduct this analysis, we entered the intervention (drawing vs. conventional) into the model and as controls age, gender, organizational and leadership tenure. To ensure that the model predicted change, we also included Time 1 scores for the four outcomes as controls into the respective models.

The overall model predicting Time 2 emotional intelligence was significant ($R^2 = .47$, $p < .001$). We found support concerning the main effect of the leadership drawing interaction on emotional intelligence. Specifically participants on the leadership drawing
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intervention were more likely to develop emotional intelligence \((t = 3.15, p < .05)\). We also found significant positive relationships between emotional intelligence development and two of our controls, age \((t = 2.02, p < .05)\) and T1 emotional intelligence \((t = 6.81, p < .001)\).

The overall model predicting Time 2 leader identity was significant \((R^2 = .51, p < .001)\). We found support concerning the main effect of the leadership drawing intervention on leader identity. Specifically participants on the leadership drawing intervention were more likely to develop leader identity. We did not find any positive relationship between the demographic variables and Time 2 leader identity. However, Time 1 leader identity was significantly positively related to Time 2 leader identity \((t = 4.61, p < .001)\).

The overall model predicting Time 2 openness to experience was significant \((R^2 = .16, p < .001)\). However, we found no support for the main effect of the leadership drawing exercise on openness to experience. Specifically, participants on the leadership drawing intervention were less likely to develop openness to experience \((t = 2.87, \text{non-significant})\). We did, however, find three of our control variables were significantly positively related to Time 2 openness to experience: age \((t = 2.21, p < .001)\), gender \((t = 2.20, p < .01)\), and Time 1 openness to experience \((t = 3.71, p < .001)\).

The overall model predicting Time 2 feedback orientation was significant \((R^2 = .36, p < .001)\). Specifically participants on the leadership drawing intervention were more likely to develop their feedback orientation \((t = 2.44, p < .01)\). We also found that three of our control variables were significantly positively related to Time 2 feedback orientation: age \((t = 2.02, p < .05)\), gender \((t = 1.21, p < .05)\), and Time 1 feedback orientation \((t = 6.14, p < .001)\).

**Discussion**

Our results demonstrated that it is possible to develop dimensions of leader mind-set—emotional intelligence, leader identity, and feedback orientation through a

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<th>Correlation of Key Study Variables</th>
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<td>T1 emotional intelligence</td>
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<td>T1 openness to experience</td>
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<td>T2 feedback orientation</td>
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*p < .05. **p < .01.
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leadership drawing intervention. Specifically, the increases we found for these outcomes were significantly higher for the leadership drawing intervention than they were for the conventional leadership development intervention. These results are notable for several reasons: The experimental group (the leadership drawing intervention) employed a comparison group that received an intervention rather than a control group; both groups of participants had similar accounts of leadership experience at the time of the study and both groups were already engaged in an intensive leadership development process.

In developing this study, we argued that the leadership drawing intervention would predict leader mind-set outcomes given the intense developmental experience that is the leadership drawing exercise. In particular, it helped participants to make more sense of their understandings of leadership and the role of followers in the leadership process. It is possible that the arts-based intervention is more effective at enhancing a leader’s self-awareness to cope with the complexities of leadership (Olivier, 2001). Similarly Romanowaka, Larsson, and Theorell (2014) suggested that arts-based interventions such as the drawing exercise may help participants to shift their perspective from “I” to “we” whereas conventional programs focus on providing ready-made solutions. Consistent with the arguments of Petriglieri, Wood, and Petriglieri (2011), it is possible that the arts-based intervention allowed participants to critically evaluate the factors that influence their leadership experiences and make sense of them. Taylor and Ladkin (2009) envisaged this process when they proposed that arts-based interventions are better at helping managers to understand the essence of their approach to leadership and to help them “to grapple with the complex and nuanced essence of the central tasks of their work in a way that is deeply connected to their own felt experience” (p. 66).

Arts-based interventions are potentially more personalized than conventional interventions. Therefore, the arts-based intervention provided a unique setting for participants to reflect on their essence as leaders. Petriglieri et al. (2011) argued that more personalized learning experiences provide more opportunities for reflective engagement. Noe, Tews, and McConnell-Dachner (2010) suggested that greater psychological engagement could enhance learner motivation. A unique characteristic of the arts-based intervention is that the learning process in transformative and requires high levels of personal engagement by participants. The arts-based intervention may function more effectively as a consciousness-raising experience (Mirvis, 2008) because of its focus on raising leader self-awareness, deepening understanding of others, and the requirement to interact with diverse perspectives on the nature of leadership and leader identity. Consciousness raising learning experiences has greater potential to result in personal insights and perspectives on leadership. The very high pre-intervention score may explain the lack of impact of the arts-based intervention on openness to experience. Overall, the arts-based intervention has a contribution to make to development outcomes in an organizational setting.

Study Implications

Although rather preliminary, our findings suggest that a leadership drawing intervention can have a significant and measurable impact on emotional intelligence, leader identity, and feedback orientation in an organizational setting where these characteristics are of
particular importance. Arts-based interventions such as the leadership drawing exercise can contribute to the development of leader mind-set. Our results therefore inform practitioners and researchers who seek to design and implement leadership development in organizations. As evidenced by the $R^2$'s shown in Table 3, three models explained significant variance in emotional intelligence, leader identity, and feedback orientation. Given the importance of these mind-set dimensions in explaining the

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<th>Table 3. Analysis of Covariance Predicting T2 Outcomes.</th>
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<td>Emotional intelligence</td>
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Note. All reported betas are unstandardized beta weight. $N = 164$. 
effectiveness of leaders, we suggest that the leadership drawing exercise can contribute to the development of organizational leadership capacity. We suggest that there may be scope to blend the leadership drawing exercise with other interventions such as coaching, mentoring, and intensive feedback.

In implementing arts-based interventions, organizations need to ensure that it has the expertise to deliver this type of intervention. The arts-based intervention in this study was delivered to a group of leaders with significant leadership experience. It may be prudent to reserve these interventions for experienced leaders. They may find it easier to engage with the leadership training experience. Our experience suggests that some participants may find the leadership drawing exercise to be novel and disconcerting. They frequently view it as a drawing exercise and assume that the skill assessed is their ability to draw. Therefore, leadership development specialists need to provide a clear briefing as to the purpose of the exercise. Organizations need to understand that the leadership drawing experience is not for all participants. We found that in some cases participants became self-protective and defensive because the interventions brought to the fore important existential questions that some participants found uncomfortable.

Further research should further explore the impact of the leadership drawing exercise on these and other outcomes. Our understanding of arts-based interventions in organizational settings is embryonic with lots of potential for future research. We suggest that there is considerable value in the use of an intervention approach that compares outcomes of different types of leadership interventions (Lester, Hannah, Harms, Vogelgesang, & Avolio, 2011; Romanowska et al., 2013) and the use of a longitudinal approach to determine how sustaining these development outcomes are. It is important to understand whether true, long-term changes result from participation in arts-based interventions. It is also important to examine the effects of these interventions within organizational settings.

Further research should examine how best to design arts-based interventions to maximize outcomes and examine the inclusion of other design elements such as development planning and one-to-one discussion and feedback. It is important to understand whether the move from a one-size-fits-all approach to some elements of customization and personalization impact development outcomes. It is important to investigate the extent of developmental readiness of participants for arts-based interventions. Developmental readiness is important in the context of other leadership development interventions (Higgins & Kram, 2001). It would also be useful to examine the duration over which these interventions should be delivered and the role of the facilitator in delivering these workshops.

**Strengths and Limitations of the Study**

A strength of this study is that we utilized a two-group, repeated measures design. This allowed us to account for variations in the baseline levels of the four leadership mindset outcomes and in some way control for changes over the duration of the study. We were able to randomly assign the leaders to the two intervention groups. In conducting
the research, we did not show bias toward either of the two interventions. Each intervention group had the same learning purpose, that is, to enhance leader effectiveness. We allocated the same amount of time to each intervention and we followed the same steps and sequence of activities across the sessions within each intervention. Prior to the interventions, participants received an introductory leadership development program therefore allowing each intervention group to start with a similar level of baseline development. These controls helped us to minimize the differences and ensure equalization of design.

Our study has a number of limitations that need to be highlighted. First, the power of our study is limited by the relatively small size of the two intervention groups. We had expected to have equal number of participants in both groups; however, we experienced greater levels of attrition in the conventional leadership development intervention. Second, we relied on leader self-reports, which may have yielded biased measures of the four outcome variables, particularly with regard to personal characteristics and self-reported behaviors. Researchers have highlighted the importance of including both managers and peers as sources of data (Yukl, 2006). Third, the same leadership development specialist delivered both interventions. As a result, it may not be possible to generalize our findings to other teaching situations. Fourth, given that this was a field study, a number of aspects of the organization could have influenced the significant effects identified. The interventions were implemented at a time of major organizational change.

Conclusion

There are significant gaps in the arts-based intervention literature concerning its impact on leadership outcomes. This quasi-experimental study provides some initial evidence that an arts-based intervention develop important leader outcomes. Study findings reveal that the arts-based intervention was more effective in that it explained significant variance in three outcomes. Most notably these findings came from an experiment conducted within an organizational setting where there was a strong commitment to leadership development.

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