Leadership as Dance: A Mixed Methods Study on Art-based Leadership Development

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As empirical evidence on the extent and of prerequisites of skill development through art-based learning is limited, a two-day leadership training based on dance practice was designed, executed, and evaluated. Learning objectives and workshop design followed an understanding of leadership as an embodied leader-follower relationship. A quantitative study examined alterations in participant's leadership skills and skill persistence in everyday working life using a pretest-posttest design. A subsequent qualitative interview study explored factors that influenced learning outcomes. Results of this mixed methods research indicate that participants achieved a significant and prolonged improvement in physical presence. In addition, the body work sensitized them for nonverbal communication shaping mutual interaction. The joint aesthetic experience alone had a learning effect that was enhanced through aesthetic reflection and repetition of exercises. The study's explanatory power is limited to movement-based practice and affected by a sample size of only 24. However, it contributes to research by measuring positive effects of art-based learning that consisted only of qualitative data before. In addition, the findings have practical implications for training embodied leadership skills: Learning environments ought to be designed as safe spaces embedded in long-term programs with recurring aesthetic impulses.

Keywords: Aesthetics, art-based learning, art-based training, art-based intervention, dance, embodiment, leadership, leadership development

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Intertwined with visionary power and a willingness to innovate, creativity has long since outstripped other leadership skills (IBM, 2010). Aside from the ability to solve complex problems in dynamic business environments, future leaders should be equipped with high integrity and a distinct ability to cooperate. They need to inspire and motivate others, they are expected to promote teamwork among an increasingly diverse and autonomous workforce, and they need to communicate effectively (Zenger & Folkman, 2014; Iordanoglou & Ioannidis, 2014; Deloitte, 2015; Giles, 2016). Against the backdrop of popular concepts like new work (Bergmann, 2019) and a growing sensitivity for humanity and connectedness in the workplace (Deloitte, 2020; Bilotta et al., 2021), mindfulness and empathy have become valuable traits (World Economic Forum, 2020).

Leadership development as "the expansion of the capacity of individuals to be effective in leadership roles and processes" (Day & Dragoni, 2015, p. 134) should correspondingly impart relevant competencies. Leadership development approaches that emphasize cognitive instead of collaborative capabilities no longer meet emerging requirements for interpersonal skills (Petrie, 2014; Deloitte, 2016; Moldoveanu & Narayandas, 2019). Conventional tools in human resource development remain within the action logic of organizations. They offer ready-made solutions and emphasize the training of routines based on standardized competence frameworks (Gagnon et al., 2012; Romanowska et al., 2013; Garavan et al., 2015). Often, there is a skill transfers gap between training content and its application to everyday working life (Moldoveanu & Narayandas, 2019).

As "the entire concept of leadership is being radically redefined" (Deloitte, 2016, p. 29), fresh approaches to leadership development have emerged, which address these shortcomings—including art-based formats that go beyond the standard classroom experience. Art-based approaches neither rely on rational logic nor on acquiring explicit knowledge about appropriate behavior patterns but instead trigger felt experience through artistic material or techniques and multimodal teaching activities. The term "art-based learning" stands for concepts in which learners engage in an art form to explore topics that are distant from the arts (Patteson et al., 2010; Rieger & Chernomas, 2013).

Terms like "arts-informed learning" (McGregor, 2012), "arts-led learning" (Bentz, 2020), and "artist-led learning" (Chemi & Neilson, 2022) share the same fundamental idea. Corresponding terms from the instructors' perspective are "arts-based teaching" (Møller-Skau & Lindstøl, 2022), "art-informed pedagogy" (McGregor, 2012), and "arts-based education" (Chisolm et al., 2021). In the context of professional development, the terms "art-based training" (Gibb, 2004) and "art[s]-based leadership development" (Parush & Koivunen, 2014; Garavan et al., 2015) are common.

Art-based training confronts participants with unfamiliar values, non-business concepts and new forms of expression to make them perceive, reflect and, if necessary, abandon conventions and habitual behavior patterns of action (Hughes, 2009). The arts are supposed to "unlock new modes of thought for participants, allowing them to develop core skills and immerse in underlying problems of workplace situations in new and more effective ways" (Beckwith, 2003, p. 209). The approach carries the idea that art-based methods promote the understanding of non-art content or facilitate the acquisition of relevant competencies such as creativity, communication, and teamwork skills (Katz-Buonincontro, 2008; Gayá Wicks & Rippin, 2010; Gagnon et al., 2012; Rieger & Chernomas, 2013; Springborg & Ladkin, 2018). Ultimately, art-based training is meant to enhance manager performance (Parush & Koivunen, 2014), an objective that differentiates this approach both from art-pedagogical workshops (Van Gent, 1997; Orr & Shreeve, 2017) and art-therapeutic measures (Schaverien & Odell-Miller, 2007; Malchiodi, 2011).

Artists seem to be ideal role models for leadership in terms of imagination (Adler, 2006). Moreover, the metaphor of the leader as artist draws on similarities between leadership behavior and the artistic process. Both require a sensitivity for people and situations as well as the ability to change perspective, envision alternate possibilities and rewrite narratives. At best, leaders and artists unfold an individual style that will inspire others to follow them into unknown territory, whose potential wants to be explored (Cadenhead & Fischer, 2000). Like artistic labor, effective future-oriented leadership is based rather on sensations, experience and sensemaking than on available concepts, common toolboxes, and rational analysis (Springborg, 2010). It calls for "a subjective world view with a discovery mindset" (Woodward & Funk, 2010, p. 300).

Within artistic genres, leadership styles range from directive to integrative (Zeitner et al., 2015; Abecassis-Moedas & Gilson, 2017) with a problematic tendency to romanticize charisma (Nisbett & Walmsley, 2016). Art's potential for leadership development does not lie in taking prevalent leadership styles in the arts as a blueprint but in adopting artistic ways of sensemaking (Woodward & Funk, 2010; Grisoni & Collins, 2012; Sutherland & Jelinek, 2015). The artistic mindset entails non-analytical, intuitive, and embodied paths to knowledge (Jacobs, 2018; Sandberg, 2021). Likewise, art-based learning is presumed to enhance sensory, body-related, and implicit knowledge that will help learners transcend rational approaches to specific business topics (Taylor & Ladkin, 2009).

Despite an increasing interest in art-based interventions, art-based approaches to leadership development are largely unexplored. While conceptual studies legitimize art-based training as a way of transforming aesthetic experiences into experiential knowing—thus touching upon softer sides of leadership (Congram, 2008; Gagnon et al., 2012; Sutherland, 2013; Springborg & Sutherland, 2016; Sutherland & Jelinek, 2015; Springborg & Ladkin, 2018), empirical evidence on concrete learning outcomes is comparatively scarce. There is a research gap on skill acquisition and changes in leadership behavior, particularly regarding long-term effects and compared to conventional leadership development programs. Learning factors such as psychological safety, timing, and the degree of creative decentration from actual business-related concerns are discussed only occasionally (Sutherland & Jelinek, 2015).

In view of these research gaps, we developed, executed, and evaluated a leadership training that was explicitly based on an art-related understanding of leadership and tapped into choreographic practice. A quantitative study examined alterations in participants' leadership skills and skill persistence in everyday working life. The design was complemented by interviews to explore factors that influenced learning outcomes. We discuss the results of this mixed methods research in relation to the literature on art-based learning and leadership development.

Art-based perspectives on leadership development

Towards an art-based understanding of leadership

Definitions of leadership relate to different leadership theories that have evolved over the decades. Originally, leadership was either related to certain innate and largely unchangeable personality traits such as intelligence and self-confidence, or explained by acquired personal characteristics such as ethos, which allowed leaders to stand out (trait leadership theory) (Zaccaro et al., 2004). In contrast, behavioral leadership theory explains effective leadership with a leader's actions and suggests ways of influencing different types of followers. As an action model, it entails the notion that the ability to lead can be acquired by training patterns of behavior (McGregor, 1960; Blake et al., 1962). This idea is refined in the contingency leadership model that links appropriate variants in leadership style to different follower qualities and the environment (Fiedler, 1967), whereas the situational leadership model recommends adjusting decision-making to the given situation and employee needs (Hersey & Blanchard, 1969). Finally, transformational leadership puts an

accent on vision and empowerment as means to stimulate individual development in leader-follower relationships (Burns, 1978).

In contrast to these approaches, latter notions of leadership emphasize its relational dimension, endorse a sensual perception of reality, and acknowledge "corporeality .. or the bodily nature of leadership" (Hansen et al., 2007, p. 553). Based on aesthetics as a theory of sensual perception (Böhme, 1993; Biehl, 2019), aesthetic leadership complements rational, fact-based decision-making with sensory experience, embodied knowledge, and intuition. The concept endorses an "engagement of the senses and ... the focus on the experiential" (Hansen et al., 2007, p. 553). If leadership is enriched by aesthetics, it overcomes the mind-body dichotomy in Cartesian thinking, which considers the mind as the essential source of knowledge (Lennie, 2000). Aesthetic knowledge, however, is informed by sensual perception in and through the body (Merleau-Ponty, 1962). Therefore, aesthetic leadership relates to a complex set of leadership skills, which are applied to attain a holistic view of reality and shape multifaceted social interaction (Hansen et al., 2007; Koivunen & Wennes, 2011).

The relational and embodied nature of aesthetic leadership is passed on in the concept of embodied leadership that defines leadership as "socially and bodily constructed through senses" (Ropo & Sauer, 2008, p. 567). Leadership emerges from the demeanor and interaction of human bodies (Ropo & Parviainen, 2001; Ladkin, 2008; Ladkin & Taylor, 2010a; Ladkin & Taylor, 2010b; Küpers, 2013; Taylor & Ladkin, 2014; Fisher & Reiser Robbins, 2015), that mirror power relations and social norms (Sinclair, 2005). Posture, movement, gestures, facial expression, gaze, and articulation emit cues that are constantly interpreted and acted upon through discursive intellect and nonverbal, physical processes of sensemaking (Weick, 1995; Sandberg & Tsoukas, 2015). Embodied leadership involves perception with all senses, bodily sensations, feelings, and sensory knowing (Woodward & Funk, 2010). Although bodily knowledge is directly connected to awareness and presence, it may be learned incidentally (Ropo & Parviainen, 2001). In each case, corporal leadership knowledge is "a special type of tacit knowing acquired through experience and social interaction over time" (Ropo & Parviainen, 2001, p. 1).

The concept of "leadership as art" (Ladkin & Taylor, 2010b) supports an integration of artistic skills and attitudes into management. Following the theoretical line of aesthetic and embodied leadership (Taylor & Ladkin, 2014), artful leadership has an aesthetic dimension that goes beyond cognition and analytical knowledge. It comprises tacit knowledge, physical presence, and corporal expression in interaction. Artful leadership is based on expanded awareness and reflection thus enabling leaders to endure ambiguity and contradiction (Ladkin & Taylor, 2010b). Expanding this idea to relevant corporal dimensions of leadership practice apart from the mere cognitive ability of envisioning, four embodied practices of leading emerge: paying attention, being present, engaging with others, and being resilient (Taylor & Ladkin, 2014). They represent "an embodied application of particular skills" (Taylor & Ladkin, 2014, p. 95).

Attention is a basic prerequisite for leadership because leading is a dynamic process that unfolds through mutual perception and interaction in leader-follower relationships (Lord & Shondrick, 2011). While "awareness is the background 'radar' of consciousness" (Brown & Ryan, 2003, p. 822) and permanently monitoring both the inner self and external environment, attention is the conscious process of focusing awareness on a limited range of sensations and experience (Brown & Ryan, 2003). Leaders need to cultivate attention to their surroundings and be sensitive to the joint attention and collective gaze they are exposed to by their followers (Ropo & Sauer, 2008; Koivunen & Wennes, 2011; Chang et al., 2016).

Authentic presence contributes to embodied leadership behavior (Koya et al., 2015) as leadership is a type of bodily performance (Sinclair, 2005) that needs the attendance of both leaders and followers to begin with (Taylor & Ladkin, 2014). Physical presence supports

verbal communication. Good performers use their presence and body awareness as a reflection of what is happening around them in the very moment (Bozic & Srhoj, 2018). Beyond corporeality, presence encompasses spiritual, emotional, and mental aspects (Jonas & Crawford, 2004), which relate to ethics of care and human commitment (Ciulla, 2009; Kuis et al., 2015). Therefore, interpersonal presence is more than a matter of body language. It is a dedicated attitude that includes a leader's sensitivity to movement and space as well as to their own presence and their followers' presence in space (Ropo & Parviainen, 2001).

Having a present focus means "being aware of and receptive to what is happening around you in the moment" (Robson et al., 2015) without being judgmental. Being in the moment is being conscious of the surroundings, wholly concentrating on verbal and bodily cues, while listening actively and passively observing others (Kubany & Sloggett, 1991). Presence affects social interaction as it entails an openness that enables an unbiased and flexible approach to encounters and situations (Ropo & Parviainen, 2001; Scharmer, 2009; Koya et al., 2015; Robson et al., 2015; Brendel & Bennett, 2016; Chang et al., 2016).

For an understanding of leadership as relational, mutual engagement is indispensable. Artful leadership creates relationship patterns in which people respond to each other in an unbiased and authentic manner (Bathurst & Williams, 2013; Taylor & Ladkin, 2014; Ryömä & Satama, 2019). Engaging entails commitment and a willingness to notice and understand sensitivities of others that are revealed through the body (Sinclair, 2005). Empathy may result in resonance when leader and followers are working in tune with each other's thoughts and emotions (Goleman et al., 2002; Goleman & Boyatzis, 2008).

Resilience is understood as individuals' resistance to stressful circumstances. It is related to successfully dealing with stressors, challenges, or crises (Baker et al., 2021). Coping with stressors and anxieties—for instance, when finding oneself in face of uncertain conditions or between conflicting role requirements—has an immediate mental and physical dimension that is susceptible to training (Taylor & Ladkin, 2014; Baker et al., 2021). The same applies to attention, presence, and engaging with others. Therefore, the embodied nature of leadership as depicted in these four core competencies has several implications for leadership development.

Core ideas of art-based leadership development

The various leadership theories imply different approaches to leadership development. Conventional approaches have a normative character. They are based on the narrative that personal characteristics and behaviors of managers are changeable toward an ideal worth striving for, using clearly defined skills and behavioral norms (Woodward & Funk, 2010). In this respect, conventional approaches emphasize behavior-based learning objectives and apply a repertoire of standardized tools for various leadership situations (Romanowska et al., 2013) that is hardly suited to embody leadership (Koya et al., 2015).

As aesthetic knowledge develops from experience (Hansen et al., 2007), leadership development that is intended to enable effective leadership in terms of holistic sensemaking must first and foremost provide experiences, stimulate self-awareness (Woodward & Funk, 2010) and subconscious behavior patterns (Hamill, 2011) addressing both leadership and followership alike (Garavan et al., 2015; Van Loggerenberg, 2019). In this way, art-based approaches to leadership development seem obvious, as "art involves our aesthetic senses and generates a different type of knowledge" (Hansen et al., 2007, p. 546), which complements intellectual knowledge. Learning experiences in art-based leadership development are designed as aesthetic encounters (Innis, 2022). They are supposed to initiate processes of self-discovery, promote personality development and aesthetic awareness, thereby complementing technical leadership skills such as strategic planning (Woodward & Funk, 2010; Garavan et al., 2015).

Artistic practice is a point of reference for countering the disembodied and disembodying practice of management (Lennie, 2000; Harding, 2003) as well as unfolding embodied ways of leadership and leadership development correspondingly. The creation of artworks has a physical dimension, as it is an embodied activity that involves material and techniques (Merleau-Ponty, 1962). To a large extent, making art is based on physical knowledge bound to movement acquired by working with a medium or the body itself over a long period of time. A "feel" for some material is an expression of bodily intelligence or embodied cognition that cannot be conveyed verbally (Hämäläinen, 2007; Grant, 2017).

Although it is impossible to directly transmit embodied knowledge from one person to another (Ropo & Parviainen, 2001; Springborg & Ladkin, 2018), the embodied dimension of leadership is presumed to be accessible through art-based training providing social interaction and experiential learning (Küpers, 2013) in a way that reveals and changes even subconscious behavior patterns (Hamill, 2011). If leading is considered a craft that can be acquired similar to artistry, the four embodied practices of leading—attention, presence, engaging with others and resilience—constitute a framework for leadership development (Taylor & Ladkin, 2014).

Approaching the embodied aspects of leadership development through dance is obvious, as dance unfolds through physical presence and body movement in time and space (Ehrich & English, 2013). Taking embodied social interaction as a starting point for learning, dance-based leadership development thwarts "the 'bodylessness' of leadership theories" (Hansen et al., 2007, p. 553) and utilizes the body's "capacity for openness and learning" (Sinclair, 2005, p. 404). The dance-based approach addresses the psychomotor domain of learning as differentiated from the cognitive and affective domains which are involved when someone is listening to lectures or observing demonstrations (Bloom et al., 1956). Learning by muscle movement and spatial perception involves spatial-kinesthetic intelligence (Gardner, 1993; Parviainen, 2010). A dance-based approach seems particularly promising as it transcends cognitive knowledge about leadership behavior with body knowledge and muscle memory (Shusterman, 2011; Lipson Lawrence, 2012).

Beyond leadership development, dance training is acknowledged for promoting interpersonal competencies and fostering social behavior. As a partner or group practice, it requires perceiving and using movement as a nonverbal way of expressing and communicating thoughts and emotions. Dance experiences enhance social and emotional competence through embodied cognition and learning (Borowski, 2021; Empowering Dance Research Report, n.d.). Therefore, there is reason to assume that dance or movement contribute to competence development in the context of artful leadership in a similar way.

According to an intercultural understanding, dance is a sequence of purposeful, nonverbal body movements, which has an inherent aesthetic value and symbolic potential because it is generally different from ordinary motor activities (Hanna, 1999). Dance provides a suitable metaphor for interrelationship and leader-follower relations in particular (Denhardt & Denhardt, 2006; Ropo & Sauer, 2008; Ehrich & English, 2012; Matzdorf & Sen, 2015; Biehl, 2017), as leadership entails coordinating joint interaction in time and space "recognizing, understanding, and engaging the rhythms of human interaction" (Denhardt & Denhardt, 2006, p. 46). As the dance analogy refers to the "interplay of human bodies in their physical and social context" (Chandler, 2012, p. 866), leadership has been depicted "as a dance between different spaces and atmospheres" (Guillet de Monthoux, 2007, p. 7). Dance expression—similar to a rhetorical language of leadership (Conger, 1991; Mayfield & Mayfield, 1995)—is based on a vocabulary of movement that unfolds in a framework of rules provided by a broader cultural context (Ehrich & English, 2013).

Leadership development that involves dance or movement is working on embodied cognition instead of following a linguistic pursuit (Springborg & Ladkin, 2018). It takes the human body as a knowing entity and recognizes perception, sensations, and feelings as sources of individual and collective bodily knowledge (Hämäläinen, 2007; Kolo, 2016). Other than

theater-based approaches, dance and movement respectively require learners to focus on bodily perception, kinesthetic knowledge, body language and muscle memory. However, research on competence development through felt learning experiences imparted through dance or other art-based methods is limited.

Evidence of art-based leadership development

The impact of art-based leadership development has been examined for interventions related to visual arts, music and performance art. Leaders who were repeatedly exposed to mixed media performance art turned their tendencies to a toxic leadership habitus into prosocial behavior and became more resilient to stress (Romanowska et al., 2013, 2014). Others who performed a drawing exercise experienced a boost in emotional intelligence, leader identity, and feedback orientation (Garavan et al., 2015).

Leaders who actively engaged in regular choir singing questioned their leadership behavior, expanded their behavioral repertoire, and developed a different team dynamic that they preserved in the long run (Jansson, 2020). Experiencing leadership in choir conducting induces self-perception and reflectivity on leadership issues that remind managers of relational leadership even later (Sutherland, 2013; Sutherland & Jelinek, 2015). Besides immediate insights in leadership practice, choir conducting supports managers in holding contradictions between directional and integrative role requirements (Parush & Koivunen, 2014).

Improvisational theater is suitable for enhancing participants' problem perception and self-awareness (Gibb, 2004). Dance-based leadership training can have the same effects while, in addition, fostering communication skills (Zeitner et al., 2015). Dance-based methods also have proven to enhance individuals' innovative competence including observation and networking capabilities (Bozic Yams, 2018). Last but not least, dance training has shown demonstrable effects on leaders' communicative, emotional, and corporeal awareness that can be conflated as "an increased awareness of the language of the body" (Winther & Højlund Larsen, 2022, p. 175).

Except for Garavan and colleagues (2015) and Romanowska and colleagues (2013, 2014), who implemented pretest-posttest control group designs, the above-mentioned studies pursued a qualitative approach using single cases of group interventions (Gibb, 2004; Parush & Koivunen, 2014; Jansson, 2020), interviews (Sutherland & Jelinek, 2015; Zeitner et al., 2015) or document analyses of participants' reflective essays (Sutherland, 2013; Bozic Yams, 2018; Winther & Højlund Larsen, 2022) as data sources. Results usually stem from the self-reporting of participants, although self-perception of one's own leadership behavior may considerably deviate from the image co-workers establish (Romanowska et al., 2013, 2014). The usual qualitative research designs impose limits to generalizability. They make art-based approaches hard to compare, particularly with conventional training.

With few exceptions that draw on a theoretical framework both for learning objectives, training design and data analysis (on leadership style see Romanowska et al., 2013, 2014; on leader mindset see Garavan et al., 2015; on embodied leadership competence see Winther & Højlund Larsen, 2022; on innovative competence see Bozic Yams, 2018), studies on art-based leadership development are explorative in nature as researchers seek to discover an impact related to distinct art forms. Consequently, results on the acquisition of competencies remain superficial as skills are neither differentiated nor systematically tested, not to mention a survey of long-term effects.

Evidence of any learning transfer into professional practice is mainly anecdotal (Congram, 2008; Meltzer, 2015; Jansson, 2020; Winther & Højlund Larsen, 2022) or neglected in cases where researchers used students as participants (Sutherland, 2013) or forewent a pretest-posttest design. Therefore, it is widely unclear whether learnings from art-based learning

interventions really are applied to management or leadership practice (Springborg & Sutherland, 2016; Flamand et al., 2021).

To explore the embodied nature of leadership and the impact of a matching training approach, including a skill transfer into professional practice, we chose dance as the underlying art form for analysis. An appropriate workshop that was geared towards corporal dimensions of leadership served as a starting point for skill development. A first sub-study sought to address several research gaps by following a quantitative and medium-term oriented pretest-posttest design that was based on the four embodied practices of artful leadership as introduced by Taylor and Ladkin (2014). Furthermore, in a second sub-study, we examined learning factors through follow-up interviews with workshop participants. Details of this research design are presented below.

Method

For examining the impact of art-based leadership training on skill development we chose a mixed methods design. As a form of methodological triangulation, we applied a sequential quantitative-qualitative design that provided complementary results (Johnson & Onwuegbuzie, 2004). The research started with a quantitative study on the degree of skill development and was complemented by a qualitative approach to identify factors that had influenced learning results. As the qualitative data also helped to offset explanatory gaps in the quantitative sub-study, we achieved an enhanced understanding of the research subject. During the long-term study, skill development was measured at three moments in time while data on learning factors were collected several weeks afterwards (Figure 1).
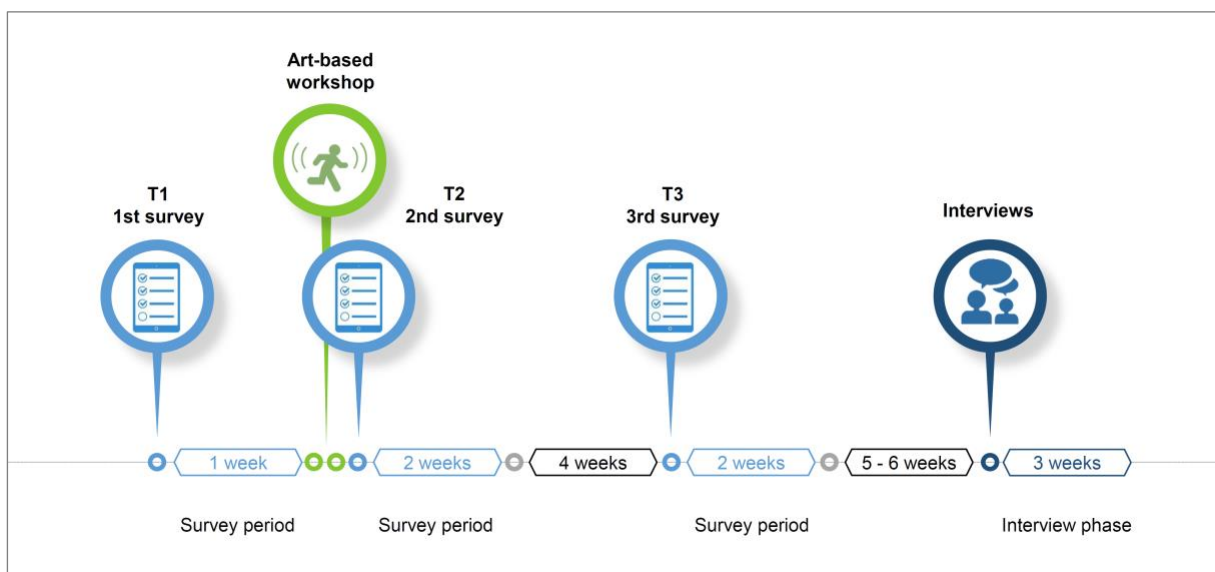

Figure 1: Study timeline (July to November 2021)

Workshop design

In order to impart four embodied artful leadership skills—paying attention, being present, engaging with others, and being resilient (Taylor & Ladkin, 2014)—a choreographer with 30 years of professional experience and a member of the research team (corresponding author) jointly designed and executed a free workshop addressed to a group of managers. The workshop design was based on principles of choreography, while in this context, choreography is understood "as design of the perception of movement and time and space" (Kolo, 2016, p. 37, emphasis in original).

Due to COVID-19 regulations and to provide maximum safety for all actors, the workshop was held outdoors in a park-like setting with an open-air stage. It lasted two consecutive

days with close to seven hours of daily active time plus several breaks. Two runs of the same workshop were performed. For that matter, the total of 24 participants were divided into two non-overlapping groups.

Aside from physical warm-ups, the program combined individual and collective bodywork, which was accompanied by an occasional musical underscore. Whereas some exercises involved playing with movement in space, other activities had a performance emphasis and brought participants on stage to demonstrate presence. While collective exercises, such as creating body sculptures, dialogic movement improvisation or generating patterns of leading and following were primarily meant to address mutual attention and engaging with others (Figures 2 and 3), sequences of individual bodywork were rather dedicated to enhancing presence and resilience. The goals behind the different exercises were not revealed to participants in order to avoid expectancy effects (Rosenthal, 1966).

Instead of informing participants about leadership approaches and normatively instructing them in specific behavior patterns, the instructors invited them to explore leader-follower relationships as embodied in gaze, posture, spacial relation, timing, and movement. During some exercises, the instructors encouraged participants to adopt the position of an "outside eye" and to share observations but refrained from any coordinated verbal reflection in plenary. In doing so, they entrusted participants with themselves linking their sensual, bodily experiences to leadership practice.

Figure 2: "Monument" exercise

Figure 3: "Flock of sheep" exercise

Participants

Participants were recruited through an alumni network and the newsletter of a professional association with over 8,000 members. Aside from organizational notes and information on the two instructors, we announced that the workshop would be about the embodiment of leadership, nonverbal communication, and physical presence. However, we did not reveal the underlying concept of artful leadership as an embodied practice. The inclusion criteria for participation were professional experience and preferably leadership experience in terms of responsibility for other people and/or a certain task area. All participants provided informed consent to participate in the study.

According to their date preference, we assigned 11 participants to the first and 13 to the second run of the workshop. Thus, random sampling was not feasible. With two exceptions in each run, participants did not previously know each other. There were no drop-outs during the workshop as a whole or during single exercises.

Regarding the composition of the participant group, the proportion of women predominated (14 = female, 9 = male, 1 = missing value). Participants were on average 42.2 years old (SD = 12.6), worked 39.4 hours per week (SD = 7.7), and had 18.7 years of work experience (SD = 13). Most participants had leadership experience (12 = disciplinary, 20 = professional, 2 = other, 3 = no leadership experience, 1 = missing value; multiple responses were possible). Participants differed in terms of their type of employment (17 = permanent, 3 = fixed-term, 2 = self-employed, 0 = solo self-employed, 0 = mini-job, 2 = missing values, multiple answers were possible) and the organization in which they were employed (3 = very small company, 3 = small company, 2 = medium-sized company, 14 = large company, 1 = other, 1 = missing value).

Measuring instruments in the quantitative study

For the quantitative study, which followed a pretest-posttest design, data was collected through three subsequent online surveys (Figure 1). Professional training is usually evaluated based on participants' statements (Ritzmann et al., 2014). Thus, we used a set of three standardized self-report-questionnaires with close-ended questions. While skills were queried at all three data collection points, personal data were only collected once, in the beginning. The third survey also addressed the professional learning transfer.

The scales used in the questionnaires are listed below (Appendix, Table 1). An item analysis was performed for the whole sample. Negatively worded items were inverted for the calculations. Items that contributed to low reliability (Cronbach's alpha <.6) or had insufficient discriminatory power (<.3) were deleted (Appendix, Table 2; see Döring & Bortz, 2016). The resulting item list served as the basis for scale calculations (Appendix, Table 2). All items were answered on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). A Shapiro-Wilk test was calculated for the variables used to measure participants' skill development. Results revealed that almost all variables for the first time point were non-normally distributed (between $W = .422$ and $W = .91$, $p \leq 0.05$). Only two variables (22 and 69) were normally distributed ($W = .92$, $p = .09$ and $W = .92$, $p = .08$).

Cronbach's alpha at the different survey time points ranged from $α > .6$ to $< .9$ (Appendix, Table 2), which is in an acceptable to a very good range when new items with differentiated item formulations are created (Appendix, Table 1; see Kline, 2013; Blanz, 2015; Stasewitsch & Kauffeld, 2020). Five scales had a relatively low reliability of $α \leq .6$ in one time point, while for the other two time points α was at least $α > .7$ to $< .9$. Hence, we kept those scales for analysis.

Taylor and Ladkin (2014) do not negate but deliberately evade any conceptualization of the four embodied leadership practices they suggest. However, they describe these practices "as an embodied application of particular skills" (Taylor & Ladkin, 2014, p. 95). In psychology, there are established measurement scales for skills that engaging with others and resilience are based on. In contrast, attention and presence have neither been clearly defined nor transferred to a standard questionnaire (Grassini & Laumann, 2020). Therefore, the scales we used for attention and presence are based on selected conceptualizations that are expected to capture the essence of these constructs as described by Taylor and Ladkin (2014). Their four practices are not clear-cut categories. In order to relate them to common conceptualizations, we had to reallocate some facets to other constructs (e.g., active listening, empathy, and self-reflection).

Attention. To create the *attention to others* scale, we developed items based on Strauß and Struchholz (2018). An example is: "I actively direct my attention to my interlocutor, even if I still have many things to do."

Presence. This construct was operationalized by the *intention to appear to others*, *presence – through own behavior*, and *presence – effect on others* scales. Based on a care-related self-report questionnaire by Kuis and colleagues (2015), these scales were redeveloped from literature on leadership and presence (Kabat-Zinn, 2003; Brendel & Bennett, 2016; Strauß & Struchholz, 2018). An example item for *presence – effect on others* is: "I'm often told that I'm 'charismatic'."

Engaging with others. Various scales were developed to measure participants' interaction with others. First, a scale adapted from Buss and Perry's (1992) Aggression Questionnaire was used for *verbal aggression*. Second, the a*voiding*, *dominating*, and *integrating* scales from the Rahim Organizational Conflict Inventory-II (ROCI-II) were adapted (Rahim, 1983). To measure *empathy*, additional items were adapted from the Toronto Empathy Questionnaire by Spreng and colleagues (2009). An example item for *empathy* is: "I'm not interested in how other people feel."

Resilience. Resilience was measured by the *extensive planning*, *positive reinterpretation*, and *focused implementation* scales (Soucek et al., 2015). An example item for *focused implementation* is: "I can prevent my mind from constantly drifting away from complex tasks." In addition, the *self-reflection – attitude* and *self-reflection – action* scales were adapted from Trapnell and Campbell (1999). An example item for *self-reflection – action* is: "I love exploring my 'inner' self."

Perceived training success. To assess training success, items for *transfer design*, the participants' *self-efficacy*, *transfer motivation*, and *transfer capacity* were used (Kauffeld et al., 2008). *Transfer design* is the extent to which the workshop exercises prepare participants for actual job requirements. *Self-efficacy* is a general belief that a person can improve one's performance if motivated. The intention to use skills acquired in the workshop in everyday work is referred to as *transfer motivation. Transfer capacity* is the extent to which participants can apply what they have learned to their daily work (Kauffeld et al., 2008). Adapted from the Q4TE (Grohmann & Kauffeld, 2013), the *perceived usefulness* of the workshop was evaluated. An example item is: "The workshop is very useful for my work." In addition, based on the Art-based Intervention Questionnaire (Snir & Regev, 2013), a scale was developed to measure participants' *perception of the workshop's art-based elements*. In this scale, participants were asked for example to indicate whether they enjoyed the movement approach in the workshop and whether it was useful for them.

Professional learning transfer. This study aimed to determine whether the workshop enabled participants to transfer (newly acquired) skills to their working environment. The *transfer to the work context* scale was used to measure this effect (Gessler & Hinrichs, 2016; Hofmann, 2017). Furthermore, to examine whether participants achieved a generalization, adaptation, or modification of skills (acquired in the workshop) to other domains, the *long-term transfer scale* was applied (Hofmann, 2017). To explore the *support* that participants received in transferring enhanced skills to their work, they were asked to assess support from their leaders and colleagues (Hofmann, 2017). An example item for this is: "My team members support me when it comes to applying the workshop content."

Qualitative research design

In order to explore learning factors that might explain results of the quantitative sub-study, we conducted 14 interviews with workshop participants who were willing to support this second sub-study and gave appropriate informed consent. Data was collected via individual video calls during a three-week period 13 to 14 weeks after the respective workshop. The interviews were semi-structured with an average duration of 21 minutes. Key questions referred to memorable aspects including body memory, perceived peculiarities of the setup, verbal reflection of workshop experience, post-workshop practice, and transfer.

The digital voice recordings were anonymized and submitted to a semantic transcription according to scientific rules; the interviews were transcribed literally, but linguistic peculiarities such as dialect, affirmative utterances and shortcut articulation were left out, to smooth the text (Dresing et al., 2015). The analysis was performed through the software program MAXQDA.

Regarding research on experiential learning processes of art-based approaches, the coding system followed a deductive approach. The categories "aesthetic workspace", "reflexivity", and "memories with momentum", were novated from Sutherland's (2013) theoretical model. The category "aesthetic workspace" displays aspects of the learning environment including "framing, aestheticizing and de-routinising" (Sutherland, 2013, p. 30). Sutherland associates "experiencing self and others, objectifying experience and associating experience" (2013, p. 30) to "reflexivity" and highlights this category as aesthetic. "Memories with momentum" resonate and affect future action. The original model was enhanced by the categories "embodiment" and "verbal reflection", which reflect preconceptions, and by subcategories that emerged inductively from the data (Table 1).

Coding was originally undertaken by one person and subsequently reviewed by a second. The reliability was checked based on six-out-of-fourteen interviews that were coded independently. The value for Cohen's kappa κ = .66 indicated a substantial inter-rater reliability (Landis & Koch, 1977; Brennan & Prediger, 1981) and the robustness of the coding procedure.

Table 1: Coding summary

	# of respondents	# of comments
Competencies		
Attention	8	20
Presence	10	24
Engaging with others	11	20
Resilience	1	1
Aesthetic workspace		
Framing		
Facilitators	3	3
Spacial setting	6	7
Working atmosphere/ Safe space	8	11
Anonymity	7	8
Aestheticizing	4	7
Deroutinizing		
Otherness	12	18
Challenges	3	4
Discomfort	3	4
Embodiment		
Training	11	22
Body memory	9	14
Reflection		
Verbal reflection		
Coordinated	2	2
Autonomous	11	24
Aesthetic reflection		
Experiencing self and others	13	41
Objectifying experience	12	26
Associating experience	5	8
Memories with momentum		
Reflective intention	2	4
Training intention	2	2
Transfer intention	4	5
Transfer	13	33
Transfer situation (COVID-19)	7	11

Findings

Quantitative study

One aim of this study was to test whether art-based training enhances participants' soft skills (Appendix, Table 3). Due to the small sample size (n = 23) and the non-normal distribution of variables, a Friedman test with Bonferroni correction was calculated. For the *presence – through own behavior* scale, there was a significant difference between the measurement points ($X^2_{(2, N = 15)}$ = 6.681, p = .035; Figure 4a). However, when calculating post-hoc analyses, this difference lost significance (z = -.833, $p_{corrected}$ = .067). For the *presence – effect on others* scale, there was a significant difference between the measurement points ($X^2_{(2, N = 15)}$ = 8.111, p = .017; Figure 4a). Post-hoc analyses revealed that the first (M = 2.5, SD = .62) and last measurement point (M = 2.7, SD = .68) significantly differed from each other (z = -0.90, $p_{corrected}$ = .04). The effect size was r = .23,

which can be interpreted as a small to medium effect (Cohen, 1988; Salkind, 2010). For engaging with others, results demonstrated a significant difference between the measurement points for the *dominance* scale ($X^2_{(2, N = 15)}$ = 6.638, *p* = .036; Figure 4b). When calculating post-hoc analyses, this difference lost significance (*z* = -.800, $p_{corrected}$ = .085). For resilience, there was a tendency in the difference between the means for the scale *positive reinterpretation* ($X^2_{(2, N = 15)}$ = 5.920, *p* = .052, Figure 4b). Results showed that there was no increase in the attention of participants ($X^2_{(2, N = 14)}$ = 1.647, *p* = .439).
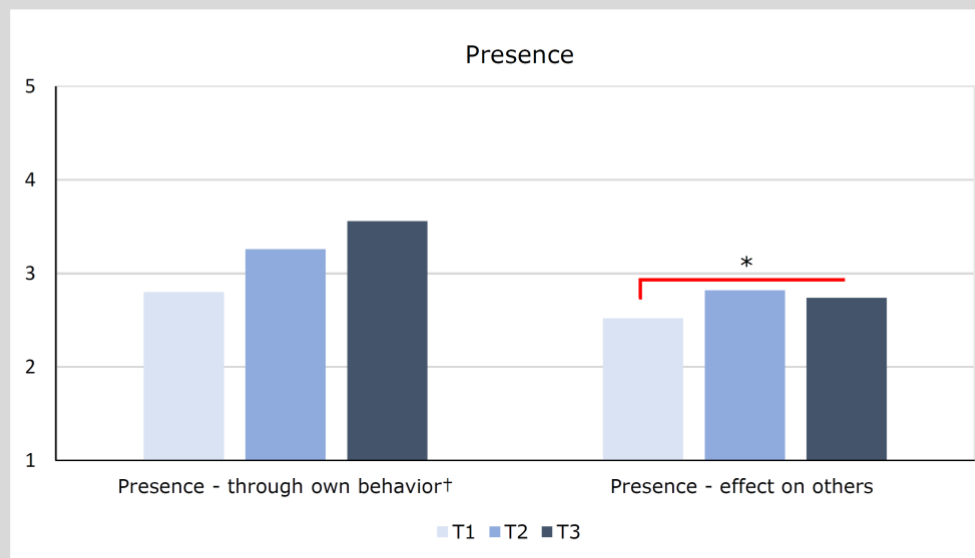
Figure 4a. For the construct presence there was a significant result for the scale presence - effect on others and a tendency for the scale presence - through own behavior. Displayed are the mean ranks.
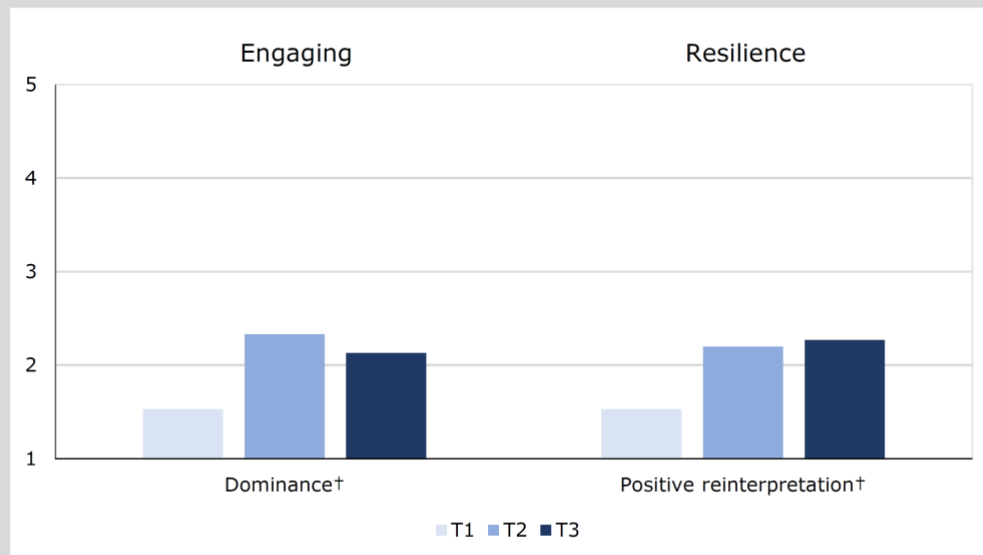
Figure 4b. For the construct engaging there was a tendency for the scale dominance. For the construct resilience there was a tendency in the scale positive reinterpretation. Displayed are the mean ranks.

Note. Participants were asked to indicate to what extent the statements in the questionnaire applied to them (on a Likert scale from 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree); † = tendencies; *p < .05.

Figure 4: Skill development

Participants positively evaluated the movement approach in the workshop (M = 4.1 SD = .74, Table 2) and indicated they perceived the art-based workshop as partially useful for their work (M = 3.2, SD = .88, Table 2). They were partially able to transfer what they had learned to their work context (M = 3.3, SD = .74, Table 2) and to new circumstances (M = 3.2, SD = .874, Table 2). Results illustrate a positive correlation between the *transfer design* of the art-based workshop and the scale *transfer to the work context* (r_s(17) = .52, *p* = .012, Table 3) and the *long-term transfer* scale (r_s(17) = .55, *p* = .008, Table 3). There was a positive correlation between *self-efficacy* and the *long-term transfer* scale (r_s(17) = .40, *p* = .047, Table 3). Support was positively correlated with *transfer motivation* (r_s(17) = .54, *p* = .009, Table 3) and *transfer capacity* (r_s(17) = .64, *p* = .002, Table 3).

Table 2: Descriptive statistics for participants' perceived training success and professional learning transfer

Scales	Time point	n	Min.	Max.	Mean	SD
Transfer design	T2	23	2.50	5.00	3.9	.79
Self-efficacy	T2	23	2.33	5.00	3.9	.64
Transfer motivation	T2	23	2.33	5.00	3.4	.67
Transfer capacity	T2	23	2.00	5.00	3.9	.84
Usefulness	T2	23	1.50	4.50	3.2	.88
Perception of art-based elements	T2	23	2.67	5.00	4.1	.74
Long-term transfer scale	T3	21	1.67	5.00	3.2	.87
Transfer to the work context	T3	21	2.00	4.67	3.3	.74
Support	T2	21	1.00	4.00	2.9	.88

Note. T2 = directly after the art-based workshop, T3 = six weeks after the art-based workshop.
Min. = minimum, Max. = maximum, SD = standard deviation.

Table 3: Correlations between workshop design and long-term impact

Scales	Indices	Long-term transfer scale	Transfer to the work context	Support
Transfer design	r_s	.55**	.52*	.11
Self-efficacy	r_s	.40*	.16	.14
Transfer motivation	r_s	.35	.21	.54**
Transfer capacity	r_s	.15	.29	.64**

Note. One-way bivariate Spearman-Rho correlations (r_s) were calculated due to the non-normal distribution of variables. N = 19, *p* <. 05, **p* <. 01.

Qualitative study

Most participants reported that, because of the workshop, they improved their physical presence, paid more attention to other people's appearance and behavior, and became more sensitive in transforming perceptions into verbal and nonverbal communication. Regarding work transfer, being present was the skill interviewees mentioned most often. At the same time, it was the corresponding workshop sequence they had trained for themselves and applied in work situations most intensely as a matter of body memory.

> "The exercise on how to express my body language, that is: How can I achieve presence with an appearance I can control myself? This has had a lasting impact on me."[1] (Interview 10)

> "I just try to express an openness with the body somehow." (Interview 13)

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[1]   Exact quotes from interviews conducted in German language were translated by the authors.

> "The perception of other people in my space is definitely something I perceive quite differently, their body language." (Interview 6)

Another important learning factor was the workshop's mere aesthetic, body-related approach. It both differed considerably from what people had experienced in other programs and was a welcomed change to their daily work routine. Aside from the facilitators' interdisciplinary background that shaped the whole experience, participants enjoyed the safe space both created in the first place by anonymizing and thus freeing each person from their personal professional background and status.

> "I experienced two days that have really moved me emotionally and where I just say, yes, this is just such an awareness on a completely different level." (Interview 5)

> "If you create such a positive, open atmosphere at the start and create this protected space, so to speak, then the participants are also more likely to open up ... It was something completely new, but it was easy to get involved. And even so that led to the fact that I feel I memorized much more than in other more conventional types of workshops." (Interview 8)

Most workshop participants exchanged views during breaks, some of them even met a couple of weeks later of their own accord. This verbal reflection, which was not coordinated by the facilitators, touched on personal experience of training elements, feelings of pleasure or awkwardness the bodywork evoked, and new perspectives on leading and following that came to light during the sessions.

> "You just shared this aha effect with each other. This, in some instances: 'Hm. Do you just know what's the point of that?' Then: 'Ah, now I get it'". (Interview 5)

> "To physically experience these changes in leadership, I found completely harmonious and could relate to it later in everyday life. Hence, I was able to transfer it to leadership situations." (Interview 9)

Almost all interviewees had an intense bodily and partly emotional experience while perceiving their own corporeality and the physical presence of others as well as the sensuous quality of the outdoor setting. They were able to abstract and generalize their immediate aesthetic experience without necessarily associating it to a leadership context. This aspect of aesthetic reflection was quasi skipped for a direct transfer into everyday working life. However, as most participants were working at the home office due to the COVID-19 pandemic, opportunities to expand embodied workshop experience to engaging with others were limited.

Discussion

Research context

In Taylor and Ladkin's (2009) scheme of art-based methods in managerial development, the intervention we examined belongs to the category "skills transfer" because it aimed at imparting dance-based movement practice and performance techniques to non-artists. The artistic basis of the only two other quantitative studies existing can be classified as "illustration of essence", as they used performance art to provide insights on leadership behavior for spectators (Romanowska et al., 2013, 2014), and "making" through a drawing exercise (Garavan et al., 2015). In addition, these studies aimed at different leadership aspects. Insofar, our results are not directly comparable and provide a new perspective on art-based learning.

The findings of our quantitative study suggest that a dance-based approach to leadership development can significantly improve a leader's physical presence as perceived by others.

It tends to increase self-perception regarding posture, movement, and effective bodily expression. Both effects were permanent. However, participants did not change their style in engaging with others except for a tendency to dominance that disappeared over time. The training evoked a tendency to positive reinterpretation of situations as an aspect of resilience. Although there was no measurable effect on attention to other people, it is worth noting that during interviews participants explicitly mentioned they had become more susceptible to other people's physical presence and body language.

Both quantitative and qualitative data show that participants appreciated the workshop's art-based, strongly motion-oriented approach as innovative and partly useful for their professional practice. They were more or less able to transfer what they had learned to their work context and personal leadership repertoire. Although transfer success depends on individual working environment, there is a clear connection between workshop design and impact. Our results suggest a considerable training success as an increased capacity in soft skills is usually perceived subjectively as less remarkable and useful than proficiency in expert knowledge (Succi & Canovi, 2019).

In total, our results resonate with existing research on positive effects that art-based approaches to leadership development have on communication skills and prosocial behavior (Osburn & Stock, 2005; Sutherland & Jelinek, 2015; Zeitner et al., 2015) while adding an explicit corporeal dimension. Dance-based practice may sensitize leaders to the fact that they communicate and express themselves through posture and bodily movements (Zeitner et al., 2015; Winther & Højlund Larsen, 2022). The augmented capacity for physical presence we found is in line with studies across different art forms that identified an increased self-awareness (Gibb, 2004; Osburn & Stock, 2006; Kerr & Lloyd, 2008; Lesavre, 2012; Sutherland, 2013; Zeitner et al., 2015; Bozic Yams, 2018; Jansson, 2020; Meltzer & Schwencke, 2020). Also, effects on resilience have been described before (Romanowska et al., 2013, 2014).

Although the interviews reflect the examined competencies similar to the results of the online survey, the statistics describe the effects more precisely. Furthermore, our study adds to research by demonstrating medium-term effects of art-based learning and highlighting an actual transfer of embodied knowledge to daily work. Although there is no success formula for transfer into practice (George & Ladkin, 2008) and movement-based approaches tend to fail in this regard (Bozic Yams, 2018), our case reveals the potential of well-designed aesthetic, corporeal experiences.

Our results support several assumptions on learning factors in art-based settings and have practical implications for workshop design regarding facilitators, learning atmosphere, reflective practice, and revision of corporeal training. That the arts-based training impacted the targeted competencies to varying degrees may be explained both by aspects of workshop design and conditions of the study as described below.

Workshop design

The qualitative study highlights the importance of framing the learning experience appropriately. The instructors' expertise in choreography and business administration respectively complemented well; their interdisciplinary backgrounds contributed to training success as other researchers have already noted (Taylor & Ladkin, 2009; Jansson, 2020). The outdoor setting created an additional aesthetic dimension that influenced participants' well-being and thus their learning process (George & Ladkin, 2008; Kariippanon et al., 2018). The physical space supported the creation of a social environment that quickly established a "community of practice" (Jansson, 2020, p. 9).

Dance is "a common experience, which creates a trustful atmosphere" (Kolo, 2016, p. 43). In a training environment, however, expressing oneself in front of others is rather frightening (McNiff, 2007). Our study confirms "the significance of unfreezing identities"

(Jansson, 2020, p. 14) for creating a safe space for self-reflection and personal development. Experiencing psychological safety and mutual trust was a prerequisite for engaging in a learning process that was as unusual, awkward, and subjectively risky as it was effective (Holley & Steiner, 2005; Gayá Wicks & Rippin, 2010; Meltzer, 2015).

Within this safe space, the instructors created a workshop experience that took participants out of their routine and disturbed their patterns in an enlightening, constructive way (Sutherland, 2013; Flamand et al., 2021). Participants perceived the setting as novel and unfamiliar which created involvement. At one point, however, the dissonance became so great that the excitation presumably turned into learning resistance. During the sequence that was meant to address resilience, participants were highly emotionally involved but unable to transpose their feelings into movement because this would have required a vocabulary of bodily expression they did not have at their command. This excessive demand may explain the poor learning results for resilience.

Reflection is considered as a "bridge between experience and learning, involving both cognition and feelings" (Gray, 2007, p. 496). In this case, workshop activities implied an intense aesthetic reflection that stemmed from individual perception and preceded cognitive reasoning and dialogue (George & Ladkin, 2008; Bathurst & Küpers, 2009). Our findings confirm that reflexive practice has an embodied dimension that unfolds in an interplay with collaborative, verbal reflection (Woodward & Funk, 2010; Ryömä & Satama, 2019).

It is common praxis in leadership development to make participants share and discuss individual experience and lessons learned (Ludevig, 2016; Springborg & Ladkin, 2018). While some claim that instructors must provide significant sense-giving to ensure insight and transfer to leadership practice (Sutherland & Jelinek, 2015; Flamand et al., 2021), our study suggests collective sensemaking is a sufficient but not necessary condition for training success. During the workshop examined here, the instructors did not coordinate verbal reflection on leadership. Instead, individual experience triggered aesthetic reflection that was deliberately shared among participants later, namely in a more unadorned way than it would have been the case in plenary. Obviously, mere experience alone had a learning effect (Springborg & Ladkin, 2018) as "the body [itself] is an aesthetic sense-making resource" (Biehl, 2017, p. 16).

The examined workshop used body work and choreographic expertise to foster learning through bodily awareness and movement, and transforming corporeal experience into embodied, aesthetic knowledge (Lawrence, 2012; Snowber, 2012). Contrary to Springborg and Ladkin (2018), embodied knowledge from art-based interventions is not transferred to real-life situations automatically and without ongoing practice. Similar to how dancers develop an individual vocabulary of movement and winning stage presence during many years of training (Ropo et al., 2001), corporeal leadership skills are embodied by revision of appropriate exercises and practice in work environments.

The workshop aimed at enhancing participants' embodied leadership practice through kinesthetic knowledge. Body memory or muscle memory is implicit. It is acquired through habituation either unconsciously from experience or through intentional training. Muscle memory takes different forms, such as a sense of personal identity or spatial memory. As procedural memory, it is needed to perform sequential tasks, including distinctively cognitive skills such as speaking (Shusterman, 2011; Fuchs, 2012). Procedural memory is generally comparatively easy to train. It can be stored and retrieved by additional training (Gundersen et al., 2018). In contrast, interpersonal muscle memory "is a complex embodied structure of habits" (Shusterman, 2011, p. 7) that impinges on personality and is difficult to alter (Shusterman, 2011; Koch et al., 2014).

In the context of health-related psychological outcomes, dance training, other than dance movement therapy, does not have a significant effect on interpersonal skills while it clearly improves motor skills and cognitive skills associated with movement (Koch et al, 2019). The

nature of muscle memory might be one explanation for the fact that workshop exercises that explicitly addressed posture and presence left a mark in procedural memory while the overall experience of interaction did not cause significant changes in interpersonal behavior other than heightened awareness.

Our study demonstrates significant medium-term effects on presence. Therefore, the acquisition of competencies was highest when participants were provided with movement exercises they could perform and repeat themselves after the workshop and have done so. Exercises that addressed attention to others and engaging—two areas with almost undetectable effects that disappeared in course of time—required partner or group work that was not replicable later and could hardly be implemented in professional practice either. Following this connection, it is recommended to train embodied leadership skills at repeated intervals and over longer periods of time in order to perpetuate the original aesthetic experience (Taylor & Ladkin, 2009, 2014; Meltzer, 2015; Bozic Yams, 2018; Jansson, 2020; Flamand et al., 2021).

Study conditions

Aside from workshop characteristics, the results need to be discussed regarding the research design. Generally, a lack of significance may be a result of the small sample size. In research on art-based interventions, small sample sizes are not uncommon (e.g., Wikström, 2001), especially if they require a considerable amount of time from participants. In this study, difficulties in recruiting participants were amplified by the sociocultural background. Because of the COVID-19 pandemic, limitations were in place for in-situ events. Hence, additional studies need to be conducted to test the robustness of our findings.

Measuring skills reflected in embodied leadership practice requires a stand-alone artful leadership questionnaire that does not yet exist. Most of the scales we used for the surveys were based on acknowledged psychological studies. Therefore, those for engaging with others and resilience were limited to verbal interaction without considering characteristics of aesthetic experience and manifestations of embodied knowledge. Due to a lack of conceptualization and standard questionnaires, we used scales for attention and presence that were not empirically tested on a large scale. In this regard, our scales represent an approximation to the four leadership practices as described by Taylor and Ladkin (2014). Although they do not capture the full skillset on which embodied leadership is presumably based, they are appropriate to explore the effects of art-based approaches to skill development.

Effects depend on the level of competence participants bring along at the outset. In this case, they had high values in empathy so that any training possibly could not cause any further increase. Statements from the interviews imply the workshop's potential for changing the attitude leaders display while engaging with their followers. Clear effects will need time to show in real-life interaction. Participants' working conditions during the COVID-19 pandemic did not allow for physical presence and interaction, thus affecting proof of competence development. The fact that we identified support at the workplace as an important condition for knowledge transfer portends to the relevance of the sociocultural context.

The limitations in study design point to a promising field of future research that should build on a larger sample, integrate control groups and explore the effects of long-range training interventions. Another question refers to the participants' group dynamics. What difference does it make to train an existing team with established leader-follower relationships (cf. Jansson, 2020) compared to facilitating a group of persons who do not know each other, as we did? Finally, it is worthwhile to go beyond leaders' self-reports by including the followers' perspective, thus exploring how art-based leadership development translates into embodied leadership practice as perceived by others.

Notwithstanding the above, there is a need for measuring instruments that sufficiently consider the particularities of art-based learning, such as ethnographic methods, video analysis, and biomedical tests. Dealing with embodiment, the informative value of verbal data must be put into perspective. In methodological terms, we need to question the suitability of language related survey methods (Chandler, 2012) in favor of practices common in artistic research and "to accept experiential and sensuous ways of knowing as academic knowledge" (Ropo & Sauer, 2008, p. 570).

Conclusion

As conventional approaches to leadership development fall short when considering future skills and contemporary views on leadership, our study aimed at putting claims for the potential of art-based learning on a surer footing. We sought a measurable impact of specific art-based training on soft skills and tried to identify supporting learning factors.

Starting with an understanding of leadership as a relational and embodied process among leaders and followers alike, we designed and performed a workshop that used dance-based movement practice and performance techniques in providing participants with aesthetic stimuli for social interaction and experiential learning. The training addressed all four core competencies of artful leadership: paying attention, being present, engaging with others, and being resilient (Taylor & Ladkin, 2014).

The results of the quantitative sub-study indicate that participants achieved a significant improvement in physical presence, which they were able to perpetuate in their professional practice in the long run. In addition, the body work helped them in becoming more sensitive on how their posture, movement, and bodily expression shape interactions with other people. Effects on engaging with others and resilience fell short of expectations. Participants' isolated working conditions and a lack of subsequent group experience offer some explanation for the limited impact of joint bodywork during a one-off event. Another explanatory approach for the disparity in effects stems from the nature of body memory. In general, interpersonal body memory is comparatively more difficult to alter and, therefore, less accessible to dance and movement-based methods than skills that are primarily embodied in procedural memory, such as presence.

The qualitative sub-study highlights how the learning environment contributed to skill development. Participants perceived the workshop both as a constructive disturbance and a safe space for exploring the aesthetic dimension of leading and following. The setup and the bodywork itself caused an intense sensuous experience and an inherent aesthetic reflection that was supplemented by informal verbal reflection. However, the mere aesthetic experience already had a learning effect. It was intensified if participants took up particular exercises for individual post-workshop training or application in leadership practice, and in so doing consolidated embodied knowledge.

Our research contributes to literature by measuring positive effects of art-based learning that only have been proposed rooted in qualitative research before. It shows that a thoughtful training design that provides aesthetic experiences can have long-term effects especially if it offers links for revision and post-workshop application. In addition, aesthetic and casual verbal reflection combined ensure a transfer of aesthetic and embodied knowledge into professional practice. Regarding art-based leadership development, recommendations for action can be directly derived from our findings on the aesthetic learning environment.

The explanatory power of our study is limited to movement-based practice and needs to be enhanced through further quantitative research. A bigger sample and scales that are more appropriate for art-based learning would generate more robust results and possibly turn tendencies into significance. Our study only partially considers the followers' perspective. This shortcoming may be addressed by a more complex research design based on leadership

development within a company setting. Furthermore, a pretest-posttest control group design could ascertain effects that are attributed to the art-based nature of the approach.

Regardless of these limitations, our results support claims for abandoning individualist leadership development methods, which focus on a person's traits and behavior, in favor of collective learning experiences, which enable managers to co-create leadership (Gagnon et al., 2012). Training people in corporeal leadership skills may seem difficult (Ropo & Parviainen, 2001) but our approach, which is centered in body awareness, movement and interaction inspired by dance practice, can point the way. As an unconventional concept that is basically non-verbal it offers a useful complement to cognition-oriented training. Furthermore, our study suggests using dance in art-based training beyond leadership development as far as social interaction and communication make up the learning area.

However, we still do not know for sure why some art-based learning endeavors generate a substantial skill development while others do not (Seppälä et al., 2020). There is a need for interdisciplinary research on the aesthetic dimension of learning processes and the impact of embodied practice. In this context, it is interesting to note that cognitive science, amongst others, uses dance as a metaphor for information-processing (Shanker & King, 2002; Lindblom & Ziemke, 2008).

To date, the role of instructors in art-based learning is supremely under-researched. For non-art learning situations, it has been suggested that a sensibility for group dynamics and social manners as well as the ability to adapt to a group's mutable energy and individual learning difficulties influences skill development (Hattie, 2003). Regarding the relationship between instructors and participants, art-based workshops set the scene for co-authored, aesthetic processes of leading and following that offer another metaphorical dimension to dance.

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Appendix

Table 1: Overview of constructs, sub-scales, items, and translated items

Construct	Sub-scale	Items	English translation	No.
Perceived training success	Transfer design			1
				2
				3
	Self-efficacy			4
		Items adapted from Kauffeld et al. (2008).		5
				6
	Transfer motivation			7
				8
				9
	Transfer capacity			10
				11
				12
	Usefulness	Der Workshop bringt mir für meine Arbeit sehr viel.	The workshop is very useful for my work.	13
		Die Teilnahme am Workshop ist äußerst nützlich für meine Arbeit.	Participation in the workshop is beneficial for my work.	14
	Perception of the workshop's art-based elements	Mich hat der Bewegungsansatz im Workshop überzeugt.	I was impressed by the movement approach at the workshop.	15
		Für mich war der Bewegungsansatz im Workshop wenig innovativ.	For me, the movement approach at the workshop was not very innovative.	16
		Ich war positiv überrascht, wie viel ich durch den Bewegungsansatz im Workshop gelernt habe.	I was positively surprised by how much I learned through the movement approach at the workshop.	17
		Der Bewegungsansatz im Workshop hat mir geholfen, mich persönlich weiterzuentwickeln.	The movement approach at the workshop helped me to develop personally.	18
Attention	Attention to others	Ich höre anderen im Gespräch aktiv zu.	I actively listen to others in conversation.	19
		Ich lenke meine Aufmerksamkeit aktiv auf meinen Gesprächspartner, auch wenn ich noch viele Dinge zu erledigen habe.	I actively direct my attention to my interlocutor, even if I still have many things to do.	20
		Wenn ich mit anderen Menschen spreche, schenke ich ihnen meine volle Aufmerksamkeit.	When I talk to other people, I give them my full attention.	21
Presence	Intention to appear to others	Ich will einen guten Eindruck hinterlassen.	I want to make a good impression.	22
		Mir ist wichtig, wie ich auf andere wirke.	It is important to me how I appear to others.	23
		Ich will, dass andere mit Respekt über mich reden.	I want others to speak respectfully about me.	24
		Mir ist es wichtig, dass andere von meiner Präsenz beeindruckt sind.	It is important to me that others are impressed by my presence.	25
		Mir ist es wichtig, dass andere mir ihre volle Aufmerksamkeit schenken.	It is important to me that others give me their full attention.	26

Construct	Sub-scale	Items	English translation	No.
	Presence – through own behavior	Ich achte bewusst auf die Art und Weise, wie ich mich bewege, gehe oder stehe.	I consciously pay attention to the way I move, walk, or stand.	27
		Ich setze meine Körperhaltung gezielt ein, damit andere mir Aufmerksamkeit schenken.	I use my posture purposefully so that others pay attention to me.	28
		Ich setze meine Stimme (z. B. Lautstärke, Pausen beim Sprechen) gezielt ein, damit andere mir Aufmerksamkeit schenken.	I use my voice (e.g., volume, pauses when speaking) purposefully so that others pay attention to me.	29
	Presence – effect on others	Ich bin mir meiner Wirkung auf andere bewusst.	I'm aware of my impact on others.	30
		Wenn ich einen Raum betrete, nimmt mich niemand wahr.	When I enter a room, no one notices me.	31
		Leute sagen mir häufig, dass sie von meiner Präsenz beeindruckt sind.	People often tell me that they are impressed by my presence.	32
		Ich kriege oft zu hören, dass ich „charismatisch" bin.	I'm often told that I'm "charismatic".	33
		Wenn ich einen Raum betrete, dann wird es automatisch still und die Leute schauen mich an.	When I enter a room, silence immediately ensues and people are looking at me.	34
Engaging with others	Verbal aggression	Wenn mich im Arbeitskontext Personen nerven, dann sage ich es auch.	If people annoy me in the workplace, I tell them so.	35
		Bei mir arten Diskussionen im Arbeitskontext häufig in Streit aus.	Discussions that I engage in at the workplace often turn into arguments.	36
		Ich bin auf der Arbeit als Schreihals bekannt.	I'm known to yell at work.	37
		Um meine Interessen auf der Arbeit zu vertreten, werde ich auch schon mal laut.	To represent my interests at work, I sometimes get loud.	38
		Auf der Arbeit bin ich bekannt dafür, dass ich kein Blatt vor den Mund nehme.	At work, I'm known for not mincing words.	39
	Avoiding	Ich versuche, mich von Meinungsverschiedenheiten mit meinen Kollegen/-innen fernzuhalten.	I try to stay away from disagreements with my colleagues.	40
		Ich vermeide konfliktreiche Begegnungen mit meinen Kollegen/-innen.	I avoid confrontational encounters with my colleagues.	41
	Dominating	Ich nutze meinen Einfluss, um meine Ideen durchzusetzen.	I use my influence to push my ideas.	42
		Ich nutze meine Autorität, um für mich vorteilhafte Entscheidungen herbeizuführen.	I use my authority to bring about decisions that are beneficial to me.	43
		Ich nutze meine Erfahrung, um für mich vorteilhafte Entscheidungen herbeizuführen.	I use my experience to bring about decisions that are beneficial to me.	44
		Ich verhandele mit meinen Kollegen/-innen, sodass ein Kompromiss erzielt werden kann.	I negotiate with my colleagues to reach a compromise.	45

Construct	Sub-scale	Items	English translation	No.
	Integrating	Ich versuche, meine Ideen mit denen meiner Kollegen/-innen zu integrieren, um zu einer gemeinsamen Entscheidung zu kommen.	I try to integrate my ideas with those of my colleagues to reach a mutual decision.	46
		Ich versuche, mit meinen Kollegen/-innen an Lösungen für ein Problem zu arbeiten, die unsere gemeinsamen Erwartungen erfüllen.	I try to work with my colleagues to find solutions to a problem that meet our shared expectations.	47
	Empathy	Ich bin nicht daran interessiert, wie sich andere Menschen fühlen.	I'm not interested in how other people feel.	48
		Ich bekomme den Drang zu helfen, wenn ich jemanden sehe, dem es nicht gut geht.	I get the urge to help when I see someone who is not doing well.	49
		Wenn ich sehe, dass jemand ausgenutzt wird, habe ich den Drang, dieser Person zu helfen.	When I see someone being taken advantage of, I get the desire to help that person.	50
Resilience	Extensive planning	Schwierige Aufgaben in der Arbeit gehe ich an, indem ich mir verschiedene Handlungsmöglichkeiten überlege.	I approach complex tasks at work by considering different courses of action.	51
		In der Regel überlege ich mir mein Vorgehen gründlich, bevor ich ein Problem am Arbeitsplatz angehe.	I usually think carefully about my approach before addressing a problem in the workplace.	52
		In aller Regel betrachte ich problematische Situationen am Arbeitsplatz aus mehreren Perspektiven.	I usually look at problematic situations in the workplace from several perspectives.	53
	Positive reinter-pretation	Eine schwierige Arbeitssituation betrachte ich als eine Gelegenheit, neue Fähigkeiten zu erlernen und diese weiterzuentwickeln.	I view a complex work situation as an opportunity to learn new skills and develop them further.	54
		Berufliche Schwierigkeiten begreife ich in erster Linie als Herausforderung und nicht als Bedrohung.	I view professional difficulties primarily as a challenge rather than a threat.	55
	Focused implemen-tation	Ich kann verhindern, dass meine Gedanken ständig von schwierigen Aufgaben abschweifen.	I can prevent my mind from constantly drifting away from complex tasks.	56
		Bei schwierigen Aufgaben am Arbeitsplatz behalte ich mein Ziel im Auge und lasse mich nicht vom Weg abbringen	When faced with difficult tasks at work, I keep my eye on the goal and don't let myself get sidetracked.	57
	Self-reflection – action	Ich denke viel über mich nach.	I think about myself a lot.	58
		Ich liebe es, mein „Inneres" Selbst zu erforschen.	I love exploring my "inner" self.	59
		Introspektivisches oder selbstreflektives Denken liegt mir eigentlich nicht.	Introspective or self-reflective thinking is not my cup of tea.	60
	Self-reflection – attitude	Ich mache mir nicht viel aus Selbstreflexion.	I don't care much for self-reflection.	61
		Mir ist es wichtig, mich selbst kritisch zu hinterfragen und so zu wachsen.	It is important to me to critically question myself and to grow in this way.	62

Construct	Sub-scale	Items	English translation	No.
		Es bereitet mir wenig Freude, über mich selbst nachzudenken.	It brings me little joy to think about myself.	63
Professional Learning Transfer	Long-term transfer	Ich übertrage das Gelernte auch auf Sachverhalte, die in dieser Weise nicht im Workshop vorkamen.	I transfer what I've learned to circumstances that didn't occur this way during the workshop.	64
		Ich passe die gelernte Methodik an meine speziellen Arbeitsaufgaben an.	I adapt the learned methodology to my specific work tasks.	65
		Ich übertrage das Gelernte auch ebenso auf neue Problemstellungen.	I transfer what I've learned to new problems.	66
	Transfer to the work context	Seit dem Workshop suche ich nach Wegen und Möglichkeiten, das Gelernte in meine Arbeit zu integrieren.	Since the workshop, I've been looking for ways and opportunities to integrate what I learned into my work.	67
		In meiner Arbeit ergeben sich Situationen, um das Gelernte anzuwenden.	Regarding my work, situations occur that make it possible to apply what I've learned.	68
		Seit dem Workshop gelingt es mir immer wieder, das Gelernte auf der Arbeit einzubringen.	Since completing the workshop, I've always been able to apply what I've learned at work.	69
	Support	Meine Führungskraft schätzt es, wenn ich die im Workshop erworbenen Kenntnisse einbringe.	My supervisor appreciates it when I apply the skills I gained at the workshop.	70
		Meine Teammitglieder unterstützen mich bei der Anwendung der Ausbildungsinhalte.	My team members support me when it comes to applying the workshop content.	71
		Meine Kollegen/-innen schätzen es, wenn ich die im Workshop erworbenen Kenntnisse einbringe.	My colleagues appreciate it when I apply the skills I've acquired at the workshop.	72

Note. In the present study, the German items were used in the presented form. On the right, there is an English translation of the items. The English translation does not represent the original English item formulation (if there was one) but appropriately translates the German items used in this study. No. = item number.

Table 2. Item analysis

Sub-scale	Discriminant power T1	Discriminant power T2	Discriminant power T3	Cronbach's alpha T0	Cronbach's alpha T1	Cronbach's alpha T2	No.
	-	.516	-	-		-	1
Transfer design	-	.340	-	-	.670	-	2
	-	.647	-	-		-	3
	-	.674	-	-		-	4
Self-efficacy	-	.844	-	-	.887	-	5
	-	.832	-	-		-	6
	-	.705	-	-		-	7
Transfer motivation	-	.359	-	-	.708	-	8
	-	.554	-	-		-	9
	-	.402	-	-		-	10
Transfer capacity	-	.551	-	-	.679	-	11
	-	.532	-	-		-	12
	-	.775	-	-		-	13
Usefulness	-	.775	-	-	.873	-	14
	-	.545	-	-		-	15
Perception of the workshop's art-based elements	-	.763	-	-		-	16
	-	.895	-	-	.871	-	17
	-	.742	-	-		-	18
	.672	.499	.752				19
Attention to others	.520	.415	.794	.767	.634	.868	20
	.617	.452	.741				21
	.552	.586	.529				22
Intention to appear to others	.711	.684	.686				23
	.440	.637	.636	.785	.776	.811	24
	.438	.331	.632				25
	.748	.585	.556				26
Presence – through own behavior	.678	.649	.614				27
	.506	.631	.720	.759	.817	.808	28
	.590	.726	.664				29
	.409	.708	.527				30
Presence – effect on others	.394	.246	.456				31
	.629	.699	.526	.708	.753	.745	32
	.673	.679	.575				33
	.238	.310	.497				34
	.447	.475	.425				35
Verbal aggression	.461	.614	.340				36
	.323	.381	.287	.645	.680	.627	37
	.373	.495	.498				38
	.559	.388	.425				39
Avoiding	.522	.657	.673	.685	.793	.801	40
	.522	.657	.673				41
	.600	.474	.595				42
Dominating	.690	.575	.522	.757	.709	.780	43
	.506	.552	.757				44

							No.
Integrating	.687	.667	.611				45
	.672	.716	.693	.827	.813	.789	46
	.735	.659	.586				47
	.728	.311	.528				48
Empathy	.811	.643	.854	.835	.639	.844	49
	.664	.431	.824				50
Extensive planning	.658	.834	.827	.726	.836	.896	51
	.490	.644	.792				52
	.508	.638	.789				53
Positive reinterpretation	.550	.774	.703	.710	.871	.806	54
	.550	.774	.703				55
Focused implementation	.535	.389	.678	.697	.550	.801	56
	.535	.389	.678				57
Self-reflection – action	.535	.531	.716	.726	.775	.771	58
	.631	.726	.485				59
	.510	.586	.673				60
Self-reflection – attitude	.522	.761	.560	.616	.660	.732	61
	.745	.683	.706				62
	.248	.594	.545				63
Long-term transfer scale	-	-	.929	-	-		64
	-	-	.868	-	-	.957	65
	-	-	.933	-	-		66
Transfer to the work context	-	-	.796	-	-		67
	-	-	.815	-	-	.901	68
	-	-	.817	-	-		69
	-	-	.868	-	-		70
Support	-	-	.919	-	-	.946	71
	-	-	.878	-	-		72

Note. T1 = before the art-based workshop. T2 = directly after the art-based workshop. T3 = six weeks after the art-based workshop. No. = item number.

Table 3. Descriptive statistics for participants' skills

Sub-scale	Time-point	n	Min.	Max.	Mean	SD
	T1	23	2.00	4.67	3.94	0.54
Attention to others	T2	23	3.00	5.00	4.03	0.44
	T3	21	3.33	5.00	4.13	0.50
	T1	23	2.60	5.00	3.67	0.62
Intention to appear to others	T2	23	3.00	4.80	3.84	0.53
	T3	21	3.00	5.00	3.95	0.60
	T1	23	1.00	4.33	2.80	0.87
Presence – through own behavior	T2	23	2.00	4.33	3.26	0.68
	T3	21	1.67	4.67	3.56	0.76
	T1	23	1.20	3.60	2.52	0.62
Presence – effect on others*	T2	23	1.40	4.40	2.82	0.70
	T3	21	1.60	4.20	2.74	0.68
	T1	23	1.00	2.80	1.93	0.55
Verbal aggression	T2	23	1.00	3.20	2.00	0.54
	T3	21	1.00	2.80	1.97	0.50
	T1	23	1.00	4.50	2.74	0.88
Avoiding	T2	23	1.00	4.00	2.59	0.76
	T3	21	1.00	4.00	2.79	0.90
	T1	23	1.00	4.33	2.94	0.85
Dominating	T2	23	2.00	4.00	3.30	0.73
	T3	21	1.67	4.00	3.17	0.71
	T1	23	3.67	5.00	4.32	0.48
Integrating	T2	23	3.33	5.00	4.33	0.55
	T3	20	3.00	5.00	4.15	0.57
	T1	23	2.33	5.00	4.32	0.68
Empathy	T2	23	2.33	5.00	4.12	0.70
	T3	10	2.50	5.00	4.38	0.75
	T1	23	3.00	5.00	4.10	0.57
Extensive planning	T2	23	2.33	5.00	3.86	0.71
	T3	21	3.00	5.00	4.05	0.60
	T1	23	2.50	5.00	3.93	0.71
Positive reinterpretation	T2	23	2.00	5.00	4.11	0.72
	T3	21	3.33	5.00	4.17	0.56
	T1	23	2.00	5.00	3.52	0.76
Focused implementation	T2	23	2.50	5.00	3.52	0.65
	T3	21	2.00	5.00	3.71	0.83
	T1	23	2.00	5.00	3.72	0.69
Self-reflection – attitude	T2	23	1.33	5.00	3.80	0.79
	T3	21	2.00	5.00	3.79	0.81
	T1	23	2.67	5.00	3.94	0.62
Self-reflection – action	T2	23	2.67	5.00	4.17	0.74
	T3	21	2.67	5.00	4.11	0.73
	T1	23	2.33	5.00	3.72	0.82
Visualization	T2	23	2.67	5.00	4.03	0.81
	T3	20	2.67	5.00	4.00	0.83
	T1	23	1.33	5.00	3.04	0.93
Goal-orientation	T2	23	1.00	5.00	3.03	0.96
	T3	20	1.00	5.00	3.27	1.01

Note. T1 = before the art-based workshop. T2 = directly after the art-based workshop. T3 = six weeks after the art-based workshop.