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Comparison within gender and between female and male leaders in female-dominated, male-dominated and mixed-gender work environments

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ABSTRACT

The aim of the study was to compare the self-rated leadership behaviors of men and women in female-dominated, male-dominated and mixed-gender work environments and make within-gender comparisons across these three contexts. Data was collected using the Developmental Leadership Questionnaire from a sample of Swedish leadership course participants ($N = 1897$). Female leaders rated themselves more favorably than male leaders in female-dominated and mixed-gender work environments. Only small gender differences were found in male-dominated settings. Women in female dominated and gender-mixed work environments reported more favorable self-ratings than women in male dominated contexts. Among male leaders, fewer differences were observed between different work environments. The results are discussed in terms of organizational culture, individual selection preferences and a rapidly growing proportion of women leaders in the Swedish labor market.

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Gender; leadership; work environment; theory-based measurement; Developmental Leadership Questionnaire (DLQ)

Criticism has been raised against much of the gender-oriented leadership research claiming that not enough attention has been paid to the specific kind of work environment at hand. Is it, for example, reasonable to assume dominance of stable gender-specific leadership behavior patterns in the military (male-dominated), in healthcare (female-dominated) or in mixed-gender business organizations? Contextual issues such as task profile or horizontal and vertical gender organizational structure and culture are likely to exert an influence on leadership behavior (Alvinus, Krekula, & Larsson, 2018). Work attractiveness is also likely to have an impact on recruitment and selection. High income and/or high status jobs will, generally, attract more physically, psychologically and socially resourceful persons than less attractive jobs (Gottesman & Hanson, 2005). It should also be mentioned that gender-segregated working environments such as the male-dominated military and rescue organizations are, to a considerable degree, due to the fact that physically demanding work has been allocated to, and has attracted, men. This has, in a structured manner, excluded women (Ericson, 2011). Thus, both individual and contextual factors have been shown to impact gender-related aspects of leadership.

The ambition in the present case was to study gender-related aspects of self-reported leadership behaviors, based on an established leadership model and paying attention to different kinds of work environments. The aim was twofold: (1) to compare the self-rated leadership behaviors of women and men in female-dominated, male-dominated and mixed-gender work environments,

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and (2) to make within-gender comparisons of the self-rated leadership behaviors of women and men in female-dominated, male-dominated and mixed-gender work environments.

Theoretical background

The last few decades have seen a sharp rise in gender-oriented leadership research (Ayman & Korabik, 2010; Bass & Bass, 2008; Burke & Collins, 2001; Carli & Eagly, 2011; Glass & Cook, 2016; Hoyt & Murphy, 2015). Various theoretical perspectives have been used as points of departure, including genetics-based studies (Chaturvedi, Zyphur, Arvey, Avolio, & Larsson, 2012), intelligence and personality-oriented research (Judge, Bono, Ilies, & Gerhardt, 2002; Judge, Colbert, & Ilies, 2004) and social constructivist approaches (Eagly & Carli, 2007).

Another common theme in gender-oriented leadership research is the stereotype construct which implies that members of a certain group, for instance women or men, are expected to share characteristics and exhibit behaviors that are typical of their group (Corsini, 1999; Hoyt & Murphy, 2015). It has repeatedly been shown that people expect men to be agentic – assertive, dominant, competent and authoritative, and women to be communal – warm, supportive, kind and helpful (Bem, 1974; Carli & Eagly, 2011). Drawing on the transformational leadership model (Bass & Riggio, 2006), it was recently claimed that women behave more transformationally and men more controlling/transactionally (Alvesson, Blom, & Svenningsson, 2016).

However, the generality of this in leadership contexts has begun to be questioned (Duehr & Bono, 2006; Eklund, Barry, & Grunberg, 2017). Thus, other researchers have shown that there are no significant differences between female and male public managers. Regardless of whether there is a female or male majority of employees or a female or male majority of managers, no effect on leadership behavior occurs (Aarum Andersen & Hansson, 2011). To further illustrate, using Bem's (1974) Sex Role Inventory, Donnelly and Twenge (2017) showed that women's self-reports of masculinity rose significantly from 1974 to 2012, with no significant change in self-reported femininity. Men's masculinity and femininity scores remained constant during this broader time frame. Women's androgyny scores have significantly increased since 1974 (but not since 1993), whereas men's androgyny scores remained constant. Thus, what appears to have happened, at least at the general population level, is that women have increased their degree of masculinity, while no corresponding increase of femininity has occurred among men. Thus, findings are mixed.

Existing research shows that, on a general level, organizational life and culture interact with leadership styles for both men and women (Brown, 1997). Leaders' socialization processes in organizations are influenced by culture and relationships, policies and procedures, etc (Schein, 1992). However, the field of within- and between-gender comparisons of leadership behaviors in different kinds of work environments appears to be under-researched.

The leadership model

The current study draws on the transformational leadership model in the form of a version adapted to Scandinavia labelled 'the leadership model' (Larsson et al., 2003; Larsson, Lundin, & Zander, 2018). This model is presented below.

According to the leadership model, the actual behavior of a leader depends on an interaction between a number of leader and contextual characteristics. In theoretical terms, this means that the model is based on the interactional person-situation paradigm (Endler & Magnusson, 1976). The area of leader characteristics involves two components: basic prerequisites and desirable skills. The basic prerequisites impact the development of desirable skills. The higher the level of basic prerequisites of the individual leader, the greater is his or her potential to develop the desirable skills. The model also entails the assumption that a favorable combination of basic prerequisites and desirable skills constitutes a prerequisite for successful leadership. However, none of these is sufficient in itself as leadership is also affected by contextual factors (Larsson et al., 2003; Larsson & Hyllengren, 2013).

The contextual characteristics shown in Figure 1 should be regarded as an example of these types of conditions. The illustration shows that groups and organizations influence one another. The same applies to organizations and the environments in which they operate. All organizations group their members together in some sort of structure. Every group develops its own group culture in order to manage its external environment, while also being affected by the

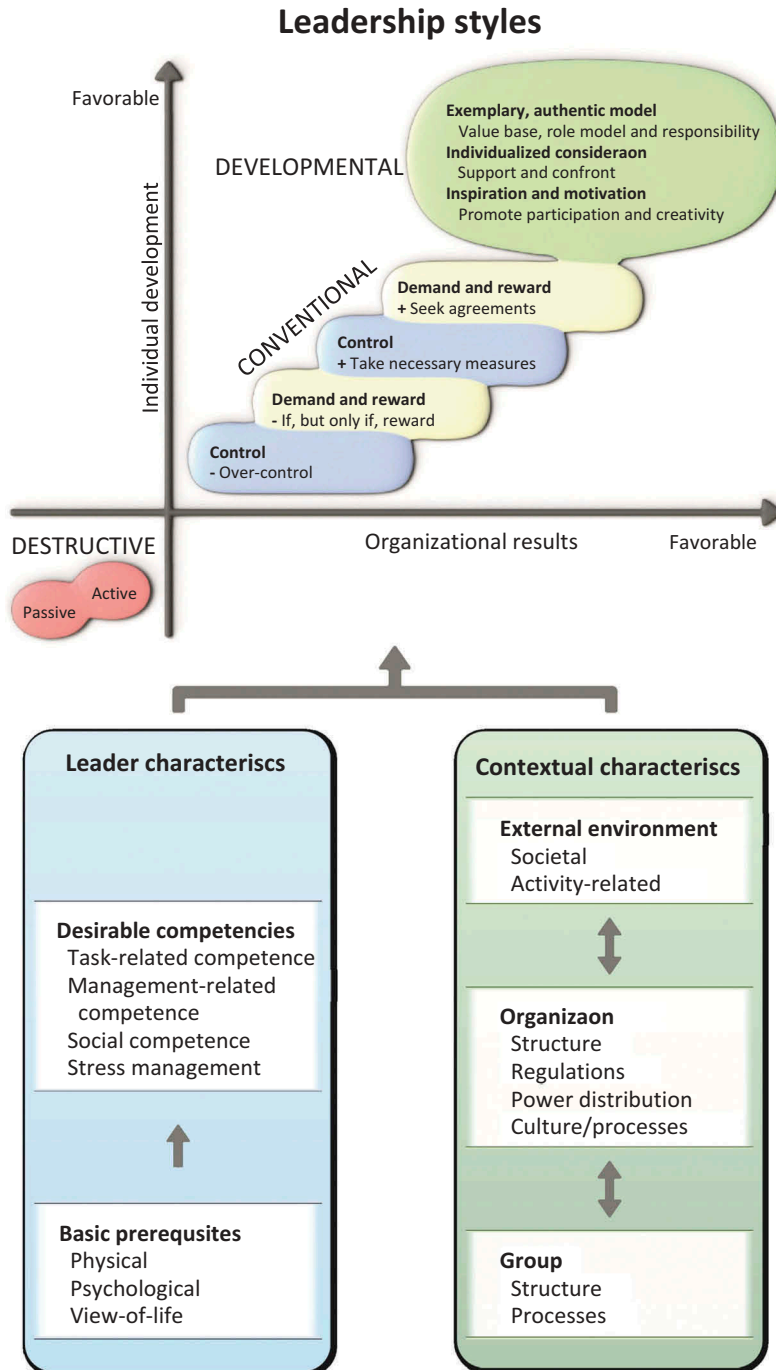


Figure 1. The Leadership Model (Larsson et al., 2018, reprinted with permission from Studentlitteratur AB).

organizational culture and structure. As shown in [Figure 1](#), the model presents three different types of leadership styles: developmental leadership, conventional leadership and destructive leadership. Each of these leadership styles has a hierarchical model structure including factors, e.g. Exemplary, authentic model, sub-factors, e.g. Value base, and multiple behaviors at the lowest level (the last-mentioned not shown in [Figure 1](#)). The model also describes a relationship between different types of leadership behaviors, where leaders differ in that they exhibit these behaviors at different frequencies. Hence the model should not be regarded as a typology classifying leaders into different categories. All leaders use the various styles to a greater or lesser extent. The different types of leadership styles are placed in a coordinate system with the axes representing organizational performance and individual development. Organizational performance relates to more objective outcomes measures, such as productivity and sick leave. Individual development relates to the leader gradually using developmental leadership behaviors more and more, which subsequently also results in individual development in the organization (Larsson et al., 2003, 2018).

The argument for choosing the leadership model is that it draws on the most wide-spread leadership model in leading scientific journals over the last decades, the transformational leadership model (Bass & Riggio, 2006; Diaz-Sáenz, 2011), and partly also on the authentic leadership model (Gardner, Avolio, & Walumbwa, 2005). In addition to this, the root of the model in the interactional person-situation paradigm (Endler & Magnusson, 1976), and the Scandinavian adaptation of the original American models, were also regarded as strengths making the model an appropriate point of departure for a gender-oriented leadership study in Sweden (Larsson et al., 2018).

Method

Participants

The sample consisted of all leaders participating in Developmental Leadership courses conducted by trainers authorized by the Swedish Defence University from July 2017 to May 2018 ($N = 1807$). Prior to these courses, each leader rated him- or herself on the Developmental Leadership Questionnaire (DLQ, Larsson, 2006). The leaders (course participants) accessed the DLQ via a web-based link. The response rate is estimated as 100 per cent as the leadership courses use the participants' responses as a point of departure.

Before responding to the questionnaire, participants are informed that their responses may be used anonymously for research purposes. They can then choose to agree to this or not, without this having an effect of their leadership course. In the present case everyone agreed. The study was carried out in accordance with the ethical principles of human research (Swedish Research Council Vetenskapsrådet, 2002), i.e. the principle of respect for autonomy, beneficence, nonmaleficence and justice.

Background data (%) for the study group is presented in [Table 1](#).

[Table 1](#) is divided by gender and type of work environment. The basis of the differentiation of type of work environment was empirical; i.e. the actual proportion of men and women in a given work environment in the present study group (the proportion of women within each type is shown below). Female-dominated work environments consist of participants working in healthcare and schools/education (77% women). Male-dominated environment is built up by participants from the armed forces, the police, the rescue services and from industry/production (24% women). The category labelled mixed-gender consists of participants who endorsed one of the response alternatives 'other service sector' or 'other' (55% women). The table shows that within the groups of women and men respectively, the background variables age, education, position, and organization size vary significantly across the three types of work environments.

Table 1. Characteristics of different work environments (%).

Variable	Female- dominated	Male-dominated	Mixed-gender	Chi-square	p
WOMEN	(n = 680)	(n = 138)	(n = 235)		
Age				59.94	.000
< 30	4	7	5		
31–50	62	72	69		
> 50	34	11	26		
Education				30.28	.000
High school	9	25	13		
University	91	75	87		
Position				20.32	.000
Frontline	30	15	16		
Mid-level	53	74	73		
High-level	17	11	11		
No. of employees in organization				53.43	.000
1–10	5	7	8		
11–30	17	12	12		
31–100	29	14	13		
101–300	10	10	19		
> 300	39	57	48		
MEN	(n = 205)	(n = 449)	(n = 190)		
Age				29.00	.000
< 30	3	14	4		
31–50	69	66	72		
> 50	28	20	24		
Education				82.60	.000
High school	11	45	24		
University	89	55	76		
Position				15.74	.003
Front line	36	25	21		
Mid-level	51	62	62		
High-level	13	13	17		
No. of employees in organization				15.56	.012
1–10	6	5	7		
11–30	17	16	17		
31–100	28	19	20		
101–300	10	11	19		
> 300	39	49	37		

Measures

The Developmental Leadership Questionnaire (DLQ; Larsson, 2006) was used to assess leadership behaviors. Developmental leadership is a leadership style with 21 items designed to measure the three factors: Exemplary, authentic model, Individualized consideration and Inspiration and motivation. Sample item: 'I act in accordance with the opinions I express.' Conventional-positive leadership is a leadership style measured using six items covering the facets Demand and reward – seek agreements and Control – take necessary measures. Sample item: 'I aim to reach agreements on what must be done.' The factor Conventional-negative leadership is also assessed using six items, measuring the two facets: Demand and reward – if, but only if, reward and Control – overcontrol, respectively. Sample item: 'I keep a log of other people's mistakes.' The Destructive leadership style finally, consists of 17 items design to measure the two factors Active destructive leadership and Passive destructive leadership (incorporated into the DLQ from the instrument

Destrudo-L, Larsson, Fors Brandebo, & Nilsson, 2012). Sample item: 'I avoid making necessary decisions'. A detailed description of the leadership dimensions, factors and facets can be found in Larsson et al. (2018).

Respondents are asked to judge how frequently they engage in the specific behavior described by each item. Each behavior is rated on a nine-point frequency scale ranging from Never, or almost never (1) to Always, or almost always (9). Scale scores were computed by adding the raw scores of the items representing the scale and dividing the sum by the number of items (scale scores could range from 1 to 9). Reliability (Cronbach's alpha) was computed on each scale for the whole sample as well as for men and women separately within each of the three types of work environments. All coefficients were satisfactory, for the whole sample they turned out as follows – Developmental leadership: 0.96, Conventional-positive leadership: 0.89 Conventional-negative leadership: 0.85 and Destructive leadership: 0.92.

Statistics

Comparisons between women and men were performed using *t*-tests. Within-gender comparisons across the three types of work-environment were carried out using one-way analysis-of variance followed by Scheffé tests, the most conservative post-hoc comparison method with respect to Type I errors. Chi-square computations were performed to assess differences in proportions on categorical background variables. Statistical significance was assumed at $p < .05$. When scale indices were computed (see above), only participants with complete scores on all items in a given index were included (listwise deletion). Following from this, the numbers of participants shown in Tables 2 and 3 are slightly lower than what is presented in Table 1.

Results

Comparisons between women and men within different types of work environments

Table 2 shows that the mean scores of men and women differ significantly on all four leadership behavior scales in female-dominated work environments. Thus, women score higher on developmental leadership and conventional-positive leadership, while men score higher on conventional-negative leadership and destructive leadership. Similar, but less clear results are obtained in the mixed-gender work environments (the gender difference on the scale designed to measure destructive leadership behaviors was not statistically significant). In the male-dominated type of work environment only one statistically significant mean difference was found, men scored higher on the conventional-negative leadership factor.

Control for confounders

The analyses underlying Table 2 were rerun five times. The two first were based on age. Participants being 30 years or less were combined with those being 31–50 years. They formed a younger group which was compared to an older group (51 years or older). Within the younger groups, the results from Table 2 were fully replicated, that is, eight of twelve possible mean differences were significant. Within the older group the tendency was the same, but only two mean differences (of twelve possible) were statistically significant (women scored higher than men on conventional-positive leadership in female-dominated work environments and on developmental leadership in male-dominated work settings).

Analyses were also rerun based on position (frontline, mid-level and high-level). The overall pattern resembled that shown in Table 2 but fewer comparisons were statistically significant (one among the frontline leaders, and two among the mid-level and high-level leaders respectively).

Table 2. Means, standard deviations and gender comparisons (t-tests) within different types of work, environments.

FEMALE-DOMINATED WORK						
Variable ^a	Women (n = 674)		Men (n = 203)		t	p
	M	SD	M	SD		
Developmental leadership	7.26	0.73	7.05	0.79	3.28	.001
Conventional positive leadership	7.43	0.78	7.13	0.93	4.53	.000
Conventional negative leadership	1.68	0.76	2.02	0.98	-5.06	.000
Destructive leadership	1.67	0.61	1.83	0.65	-3.05	.002
MALE-DOMINATED WORK						
Variable ^a	Women (n = 132)		Men (n = 443)		t	p
	M	SD	M	SD		
Developmental leadership	7.03	0.92	7.02	0.81	0.05	.958
Conventional positive leadership	7.29	0.95	7.31	0.83	-0.32	.747
Conventional negative leadership	1.95	0.88	2.19	1.03	-2.36	.019
Destructive leadership	1.81	0.52	1.79	0.67	0.24	.808
MIXED-GENDER WORK ENVIRONMENT						
Variable ^a	Women (n = 228)		Men (n = 188)		t	p
	M	SD	M	SD		
Developmental leadership	7.23	0.74	7.06	0.70	2.16	.032
Conventional positive leadership	7.29	0.81	7.11	0.86	2.19	.029
Conventional negative leadership	1.73	0.79	1.88	0.72	-1.95	.048
Destructive leadership	1.73	0.61	1.83	0.63	-1.61	.108

^aScores could range from 1 (lowest frequency) to 9 (highest frequency)

Table 3. Means, standard deviations and within gender comparisons (One-way Analysis of Variance) of self-rated leadership behavior in female-dominated, male-dominated and mixed-gender work environments.

FEMALE LEADERS									
Variable ^a	Female-dominated (n = 674)		Male-dominated (n = 132)		Mixed gender (n = 228)		F	p	Scheffé ²
	M	SD	M	SD	M	SD			
Developmental leadership	7.26	0.73	7.03	0.92	7.23	0.76	4.30	.014	A
Conventional positive leadership	7.43	0.78	7.29	0.95	7.29	0.81	3.57	.029	
Conventional negative leadership	1.68	0.76	1.95	0.88	1.73	0.79	6.65	.001	A, C
Destructive leadership	1.67	0.66	1.81	0.51	1.73	0.61	3.10	.046	A
MALE LEADERS									
Variable ^a	Female-dominated (n = 203)		Male-dominated (n = 443)		Mixed gender (n = 188)		F	p	Scheffé ²
	M	SD	M	SD	M	SD			
Developmental leadership	7.05	0.79	7.02	0.81	7.06	0.78	0.17	.843	
Conventional positive leadership	7.13	0.93	7.31	0.83	7.11	0.86	5.00	.007	A, C
Conventional negative leadership	2.01	0.98	2.19	1.03	1.88	0.72	7.12	.001	C
Destructive leadership	1.83	0.65	1.79	0.67	1.83	0.63	0.31	.733	

^aScores could range from 1 (lowest frequency) to 9 (highest frequency).

^bA = Significant difference between female-dominated and male-dominated work environments ($p < .05$).

C = Significant difference between male-dominated and mixed-gender work environments ($p < .05$).

Within-gender comparisons in different types of work environments

Among female leaders, significant mean differences are noted across the three types of work environment in both leadership behavior style scores and leadership factor scores respectively. Most favorable results are consistently found in female-dominated work environments and least favorable mean scores are noted in male-dominated work environments.

Among male leaders a different picture emerged. Most favorable scores were found in male-dominated work environments on the scale designed to measure conventional-positive leadership behaviors. On the conventional-negative leadership scale, the most favorable mean score was found in the mixed work environments and the least favorable result was obtained in the male-dominated work environments. No significant differences were found on the developmental leadership and destructive leadership scales.

Control for confounders

The analyses underlying [Table 3](#) were also rerun as reported above within two different age groups and three groups with different organizational positions. The overall pattern shown in [Table 3](#) (where six of eight possible differences were significant) was replicated in all these analyses but fewer mean differences reached the level of statistical significance. Thus, in the younger group: four significant differences, in the older group: one, for the frontline leaders: one, in the mid-level leaders: two and for high-level leaders: no significant differences.

Discussion

The first aim was to compare the self-rated leadership behaviors of women and men in female-dominated, male-dominated and mixed-gender work environments. The results in female-dominated work environments were clear – women rated themselves higher on developmental leadership and conventional-positive leadership, while men rated themselves higher on conventional-negative leadership and destructive leadership. The only difference found in male-dominated work environments was that men rated themselves higher on conventional-negative leadership. In the mixed-gender work environments, the results resembled those obtained in the female-dominated settings. However, there was no significant difference on the destructive leadership scale in the mixed-gender case. The mean score among women on this scale in mixed-gender work environments was actually higher than the women's mean score in female-dominated work environments (although the difference was not statistically significant). If a higher proportion of men lowers the threshold for women to use destructive leadership behaviors could be a topic for further research.

Further subgroup analyses of potential confounding effects of age and organizational management level mainly confirmed the presented overall picture. The lower number of statistically significant differences in the subgroup analyses can, at least partly, be explained by smaller sample sizes.

The second aim was to make within-gender comparisons of the self-rated leadership behaviors of women and men in female-dominated, male-dominated and mixed-gender work environments. Beginning with women, a clear picture emerged. In female-dominated work environments (as compared to male-dominated work environments), female leaders reported more use of developmental and conventional-positive leadership behaviors and less use of conventional-negative and destructive leadership behaviors. These findings are in line with previous research (Burke & Collins, 2001; Hoyt, Simon, & Reid, 2009; Merchant, 2012). The result in mixed-gender work environments resembled that obtained in female-dominated work-settings. The relationship between type of work environment and men's self-reported leadership was less clear. Male leaders used more conventional-positive leadership, as well as more conventional-negative leadership, in male-dominated work settings. Among male leaders, no differences between work environments were found on the scales designed to measure developmental leadership and destructive leadership respectively.

How can these results be understood? The results in the female-dominated and mixed-gender work environments are in line with previous claims that women use more transformational and less transactional/controlling leadership behaviors (Alvesson, Blom, & Svenningsson, 2016). The findings in these two kinds of work environments could also be interpreted as indicating that women leaders do not lack confidence in their leadership role, which contradicts the stereotype image that women tend to underestimate themselves. The results in the male-dominated work settings on the other hand, are in agreement with the finding that there is no gender difference in leadership behaviors (Aarum Andersen & Hansson, 2011).

The mean scores of women differed on all four leadership scales across the three types of work environments, while the means among men only differed on two of the scales. This could be interpreted as indicating that women leaders have a higher sensitivity for the interpersonal aspects of the work environment and that they have a higher ability for flexibility in adopting different leadership approaches depending on context.

Stereotypes say that men can be expected to be more instrumentally-oriented, dominant and authoritative, and women are supposed to be more expressively-oriented, supportive and helpful (Carli & Eagly, 2011). This would be more in line with the results obtained within the female-dominated and mixed-gender work environments, but it does not fit with the within-gender results differences across the different types of work settings. This supports the importance of paying attention to different kinds of work environments in this type of research.

A different attempt to understand the results is to relate them to the characteristics of female-dominated and male-dominated work environments. In the present case, the female-dominated workplaces consisted of healthcare organizations and schools. These environments have a strong humanistic and interpersonal emphasis. The participants from the male-dominated settings were mainly recruited from the military and from industry/production organizations. At least historically, these types of work environments have had a stronger functional and command-oriented emphasis. So, it seems reasonable to assume that the results can be understood from an organizational culture perspective (cf. Brown, 1997; Schein, 1992). But probably only partly, the selection hypothesis cannot be ruled out. This hypothesis states that certain personality types are attracted to certain kinds of jobs among both women and men, and that this could explain the results. Unfortunately, no assessment was made of personality, so we are left with the conclusion that societal and organizational aspects, as well as individual personality-oriented aspects, could account for the results (cf. the interactional person-situation paradigm, Endler & Magnusson, 1976).

Still a different way to look at the results is to relate it to ongoing changes in society and the labor market at large. Sweden is ranked as one of the most gender equal countries in the world (European Institute for Gender Equality, 2017; United Nations Development Programme (UNDP), 2010). In 2015, the Swedish Government stated that it was the first feminist government in the world (Swedish Government, 2015). The average proportion of female managers in all sectors is nearly 40% (Statistics Sweden, 2016) and this is rising rapidly (Confederation of Swedish Enterprises, 2017). Given this, it seems reasonable that the old stereotype 'think manager – think male' (Schein, 2001) is beginning to become outdated (see also the cross-temporal change reported by Donnelly & Twenge, 2017). A richness of research shows that developmental and conventional-positive leadership behaviors covary with various favorable individual and organizational outcomes (Bass & Riggio, 2006; Diaz-Sáenz, 2011). Even stronger support showing that destructive leadership covaries with negative outcomes is available (Einarsen, Aasland, & Skogstad, 2007; Larsson et al., 2012; Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007). To the degree that women as a group act more in line with these general research findings than men, as partly shown in the current study, it can actually be assumed at the group level that women's leadership behaviors are more effective from an organizational point of view. In addition to organizational effectiveness, it has also been shown in a large-scale, multi-level study that a higher proportion of women at higher organizational levels is associated with less gender segregation (Stainback, Kleiner, & Skaggs, 2015).

Study strengths include a fairly large sample and the use of a theory-based assessment tool of high reliability. The comparison of three different types of work environments is also a strength. However, it should be noted that the environment type division is broad and rough. Working in a healthcare organization can, for instance, mean that you are director of a university hospital, head of a small ward or an HR unit manager. Unfortunately, we do not have this kind of detailed data.

Another shortcoming is that the study is based on self-ratings only, collected at one point in time. Ratings made by superiors, peers and subordinates would be desirable as well as more objective data. Thus, more detailed data on the participants' actual jobs within a given work sector, as well as data from more sources than self-ratings, form our main suggestions for further research. Still another limitation following from the selected aspect of potential empirical data, is that we have no information on expectations and demands on female and male leaders – self-imposed or in the eye of significant others (cf. Glass & Cook, 2016; Hoyt & Murphy, 2015; Merchant, 2012).

One practical implication is to use the empirical results of this study in general leadership educational contexts and in individualized coaching or mentoring programs. A second implication is related to recruitment and selection. The present results could serve as a basis for critical reevaluation negative attitudes towards women in recruitment and selection processes. The female leaders in the present study used more developmental (transformational) leadership than their male peers and this leadership style has repeatedly been associated with favorable organizational outcomes (Bass & Bass, 2008; Burke & Collins, 2001; Lam, 2016). A third and final implication is a need to explore and take action against a higher frequency of negative leadership behaviors, among both female and male leaders, in male-dominated work environments.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

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