

DIGITAL LEADERSHIP COMPETENCIES

The effect of digital leadership competencies in job advertisements on the application intentions of female applicants

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Excerpt of a master's thesis

Abstract

Women are underrepresented in management positions in German companies. One of the many reasons for this is the stereotypically male image of leaders. With the digitalisation of the world of work, the demands on a leader are changing, and social-interactive and communicative skills are becoming more relevant. Due to the female stereotyping of these digital leadership competencies, representatives from science and practice expect a feminisation of leadership. The master's thesis explores this connection and examines the extent to which digital leadership competencies are attractive to women, depending on their stereotypical connotations. The focus here is on attractiveness in job advertisements, as applying for a leadership position is the first step into a leadership role. For this reason, this study analysed the application intentions of female and male applicants in an experimental online survey. In a repeated measures design, 171 participants evaluated twelve fictitious job advertisements, each including a digital leadership competency. The attractiveness of the competencies was measured using a five-point rating scale, including the intention to apply. The results show that female stereotyped competencies have a positive effect on the attractiveness assessment of women. Technical competencies, on the other hand, have a negative effect on the assessment of attractiveness. Male stereotyped digital leadership skills with no technical reference have neither a negative nor a positive effect. On the one hand, the findings of this master's thesis offer approaches for using digital leadership competencies in job advertisements in companies. On the other hand, they provide a scientific perspective on the assumed feminisation of leadership.

Keywords: *women, digital leadership competencies, leadership, stereotype, job advertisement, application*

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1 Introduction

The number of women in the labour force and with successful careers has been increasing since the 1960s. As a result, the proportion of working women in 2023 is almost comparable to that of working men (Statistisches Bundesamt [Destatis], 2023). However, the proportion of women and men whose careers extend to a leading position is not comparable. According to a report by the German Institute for Employment Research (IAB), women are underrepresented in leadership positions in both the private and public sectors (Kohaut & Möller, 2022).

Among other things, the idea of an ideal leader contributes to the continued perpetuation of gender inequality at the management and leadership levels (Burel et al., 2020). Schein's (1973) "Think Manager – Think Male" approach shows that implicit assumptions about leadership personalities are strongly male-dominated (Rybnikova & Lang, 2021). Implicit self and external attributions of the stereotypical role of women contrast these implicit leadership assumptions (Hentschel et al., 2019; Koenig et al., 2011). Those implicit assumptions lead to (young) female employees having limited confidence in their ability to lead.

While the absolute and relative proportion of female leaders remains low, the perception and concept of the ideal leader are constantly evolving. Digitalisation is interlinking the world of work and placing new demands on handling everyday tasks (Hasenbein, 2020; Petry, 2019; Rüttgers & Hochgürtel, 2019). This digital transformation is changing the requirements and, therefore, the competencies needed for successful leadership in a digital environment. A new, digital understanding of leadership is developing (e.g., *Digital Leadership* or *Future Leadership*) that focuses on interpersonal and communicative leadership skills and moves away from the traditional, male-centred concept of a leader (Gilli et al., 2023; Henderikx & Stoffers, 2023; Imbery et al., 2022; Philip et al., 2023; van Laar et al., 2017; Vuorikari et al., 2022; Weber et al., 2022).

Some authors see an opportunity for the feminisation of leadership by combining these aspects - changing leadership skills due to digitalisation and a low proportion of female leaders (Burel et al., 2020; Gierke, 2020; Reimer & Onaran, 2020).

Various digital leadership competency models show that the authors' statements must be scrutinised further. Although many concepts of digital leadership competencies include the aforementioned social skills, they also require technical skills such as adept handling of software and hardware (Gilli et al., 2023; Henderikx & Stoffers, 2023). The technical side of digitalisation is stereotyped as male and could form a counter-pool to the female-stereotyped competencies (Lott, 2023). It is, therefore, questionable whether digital leadership can contribute to the feminisation of leadership.

This master's thesis aims to describe the effect of female and male stereotyped (further referred to as *agentic* and *communal*¹) digital leadership competencies in job advertisements on the application intentions of female candidates. That is, to examine whether stereotype-based application intentions risk unintentional gender segregation as people experience an unconscious mismatch and self-select before even trying (Damelang & Rückel, 2021).

The focus is on the intention to apply in reaction to a job advertisement, as the subjective examination of one's leadership aptitude is crucial for the actual application. The application itself is, in turn, a necessary step towards starting a leadership career (Hentschel & Horvath, 2015). Concretely, this master's thesis observes the extent to which digital leadership may appeal to female leadership candidates or, on the contrary, discourage them with technical requirements. Previous studies by Born and Taris (2010), Damelang and Rückel (2021), Gauthier et al. (2011), Hentschel et al. (2020), Horvath and Sczesny (2016), and Stops (2023) show that both reactions are possible.

The outcomes contribute to the ongoing discussion about the feminisation of leadership through digitalisation. They can be used to develop practical implications for the use of digital leadership competencies in job advertisements. They also add to the Erasmus+ project "DIGIGEN – professional career guidance for women in management positions in the field of digital competencies" (KA220-VET-EA878F31). In a human resources or career guidance setting, coaching a female leadership candidate can benefit from an awareness of self-ascribed lack of fit due to unintentional gender stereotypes. Counselling thereby can support reframing the candidate's perspective on her leadership capabilities and fit. Therefore, the results are not only relevant for personnel marketing but also for career counselling.

2 Theoretical Framework

Digitalisation is influencing how people lead. The new type of *leadership* requires new leadership skills that change the implicit perception of a manager/leader. The changed understanding of leadership could positively impact *gender equality* in leadership positions.

2.1 Digitalisation, Leadership and Gender Equality

The effects of **digitalisation** include the technologisation of work equipment (working with and on computers) and the resulting virtualisation of work processes (flexible working in terms of time and location) (Hasenbein, 2020). Virtualisation enables remote working, which in turn

¹ Agency and communion are dimensions behavioural orientation, whereas agency is associated with men and communion with women. Agentic individuals have assertive, dominant and self-confident tendencies. Communal individuals are characterised by concern for the well-being of others, such as affection, helpfulness, or friendliness (Eagly & Karau, 2002).

changes the requirements of a professional activity. Employees need competencies to be successful in the digital (technical competencies) and complex environment (interpersonal competencies) (Hasenbein, 2020; Petry, 2019; Rüttgers & Hochgürtel, 2019). Digital skills are described, for example, in the European Commission's Digital Competence Framework for Citizens (Vuorikari et al., 2022). The framework lists "information and data skills", "communication", "collaboration skills", "digital content creation", "digital security awareness", and "problem-solving skills" as fundamental digital competencies.

Leadership is a phenomenon that changes over time. Due to contextual factors (almost exclusively male leaders), a strongly masculine connotated image of the ideal leader emerged early in leadership research (Lord et al., 2017; Rybnikova & Lang, 2021; Schein, 1973). Over time, more sophisticated approaches have revised this implicit understanding and added new dimensions (e.g., leadership competencies) to the old theories (Koenig et al., 2011). One of the most recent developments is digital leadership, which transfers the requirements of the digital environment and the complex organisation to the leadership task. Digital leaders, therefore, need revised leadership competencies. (Gilli et al., 2022; Imbery et al., 2022; Kirch et al., 2018; Lorenz, 2018; Philip et al., 2023)

The German Association for Personnel Leadership (Deutsche Gesellschaft für Personalführung e.V., 2016) describes the specific requirements of a manager in a digitalised company:

- *Leading in the digital transformation process:* Leaders have the task of actively shaping the digital transformation process and involving their teams in the change.
- *Leading digital diversity:* Employees in a team are prepared for digital changes to varying degrees. A leader's task is to respond appropriately to the needs of each individual and support digital (further) training.
- *Leading in virtual space:* The changes in work processes create a spatial and temporal separation of tasks and team members. The challenge for leaders is to act and communicate effectively and sensitively through the digital space.
- *Leading complexity:* The demands placed on a working environment have become more complex and agile due to changes in organisational structures. This requires leaders to deal dynamically and flexibly with the challenges that arise.

It is striking that experts attribute a low value to the application knowledge of software, data analyses and programming (Gilli et al., 2022; Imbery et al., 2022; Kirch et al., 2018; Lorenz, 2018; Philip et al., 2023). At the same time, these technical skills are often required in job advertisements (Gilli et al., 2022). Imbery et al. (2022) categorise this difference as follows: "Technical knowledge is assumed to be a future competence, but social-communicative skills are more relevant for leaders."

In 2023, **gender equality** in the labour market is still developing. In relation to men, women are underrepresented in the labour market, especially in leadership positions (Kohaut & Möller, 2022). The historical marginalisation of German female employment² has a lasting impact on the implicit perception of women's role (Hentschel et al., 2017). The incongruence of the female role and the masculine leadership ideal (*role incongruity theory*) is one of the reasons why it is more difficult for women to rise to or work in leadership positions (Mai et al., 2017; Rudman & Glick, 2001).

For a summary of these interlinking developments see Figure 1.

Factors Affecting the Feminisation of Leadership

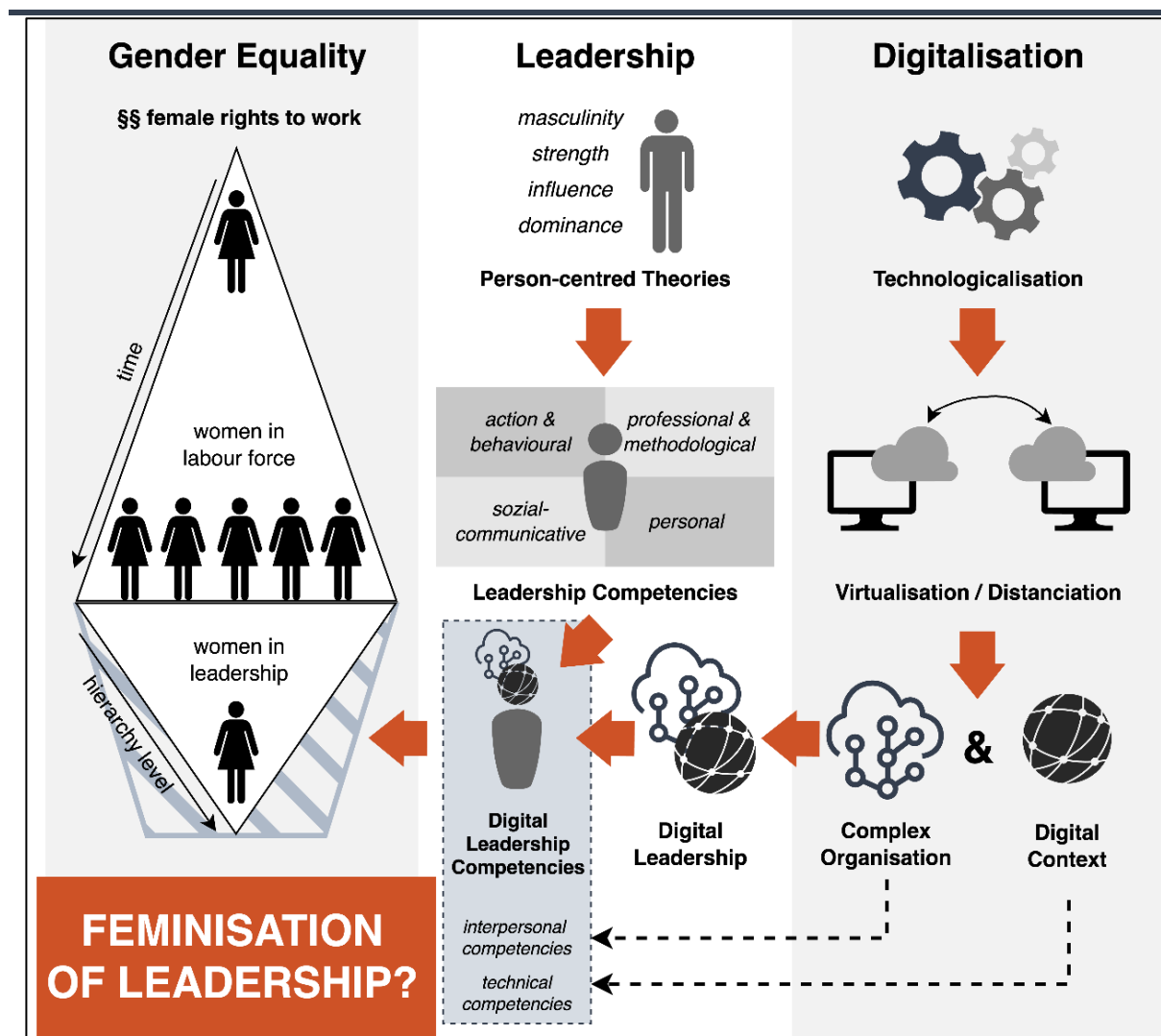


Figure 1: Overview of the connections between leadership, digitalisation and gender equality.

² Due to regulations of § 1354 I BGB i. d. F. v. 18.08.1896, 1.EheRG i. d. F. v. 14.06.1976, § 1356 II 1 BGB, which granted access to the labour market only with the husbands approval until 1976.

2.2 Application intention

In interpreting the Lack-of-Fit model, the **role incongruity theory** directly affects the application intentions of female applicants (Hentschel et al., 2020). The Lack-of-Fit model states that people assess their fit by comparing the perceived requirements of a position (e.g. agentic leadership) with their perceived personal characteristics (e.g. communal gender) (Heilman, 1983). This subjective comparison determines the expected application success and the interest in the leadership position (Hentschel et al., 2020; Tellhed et al., 2017). Concepts of professional self-efficacy also consider a skill-related (ability) component (Choi et al., 2012). The conviction that one has the required skills/competencies for a position leads to a higher self-efficacy to fulfil the job requirements. The expected *success of the application*, *interest* in the position and one's assessment of *ability* ultimately influence the *intention to apply* (Gaucher et al., 2011; Hentschel et al., 2020; Hentschel et al., 2018).

Vroom's **valence-instrumentality-expectancy theory** (*VIE theory*) provides a framework for self-selection via the intention to apply (Hentschel et al., 2020; Nerdinger et al., 2019). According to the basic assumption, motivation depends on the perception of the probability of being able to achieve a certain performance with an effort, as well as the relative benefit of the performance for the individual's goal achievement (Holtbrügge, 2022). Regarding the motivation of a female leadership candidate, she first considers whether she has the necessary skills to be suitable (expectancy). This is followed by considering whether she is confident the application will succeed (instrumentality). Finally, how attractive a position appears to a female applicant is relevant and thus arouses her interest in applying (valence). If all three factors are assessed positively, the motivation to apply will arise, and the applicant will not drop out.

2.3 Selected hypotheses

Studies by Hentschel et al. (2020), Born and Taris (2010), Damelang and Rückel (2021), and Gaucher et al. (2011) show significant negative correlations between agentic job advertisements and the application intentions of women. Hypotheses 1 and 2 refer to this correlation and also differentiate whether agentic connotations tend to discourage and/or communal connotations tend to attract.

- H1 Job advertisements with agentially connoted digital leadership competencies lead to a lower motivation to apply among female applicants than male applicants.*
- H2 Job advertisements with communally connoted digital leadership competencies lead to a higher motivation to apply among female applicants than male applicants.*

Hypothesis 3 suggests that the fact that a leader is being sought will lead to an implicit-agentive leadership perception, and therefore, competencies with a neutral connotation will reduce the application motivation of female candidates.

H3 Job advertisements with neither agentive nor communal connoted digital leadership competencies lead to a lower motivation to apply among female applicants than male applicants.

The meta-analysis on implicit leadership theories by Koenig et al. (2011) shows that male stereotypes regarding the ideal leader are reduced with increasing age, as the experience gained with various leaders contradicts this stereotype. Hypothesis 6 picks up on this effect and assumes a lower influence of implicit leadership theories on interpreting digital leadership competencies and the perceived lack of fit.

H6 With increasing age, the instrumentality and valence of female applicants increase (lack of fit)/the effect of agentive implicit leadership theories decreases.

Women in STEM have already asserted themselves against male stereotypes with their career choices. Hypothesis 7, therefore, assumes that women in STEM professions experience their ascribed gender role as less incongruent with implicit leadership theories than women in non-STEM professions (lack of fit). Hypothesis 8 also assumes that women in STEM professions, whose activities are often characterised by digital aspects, are more likely to ascribe the skills of a digital leader to themselves than women in non-STEM professions.

H7 Female applicants from STEM occupations have higher instrumentality and valence (lack-of-fit)/reduced effect of agentive implicit leadership theories than those from non-STEM occupations.

H8 Female applicants from STEM occupations have a higher expectancy (ability) than those from non-STEM occupations.

3 Method

An experimental study with a repeated measures design was conducted to investigate the impact of digital leadership competencies. Respondents took part in an online survey assessing variously connoted digital leadership competencies in job advertisements concerning their intention to apply.

3.1 Construction of the questionnaire

An inventory of twelve relevant digital leadership competencies and their definitions was created by integrating the concepts of digital leadership competencies from Imbery et al. (2022),

Gilli et al. (2022) and Philip et al. (2023). The connotation of these digital leadership competencies was evaluated on a theoretical basis with the help of a merged dictionary of terms with agentic and communal connotations ("Bem Sex Role Inventory" cited from Ferrer-Pérez & Bosch-Fiol, 2014; Gaucher et al., 2011; Hentschel et al., 2019; Technische Universität München [TUM], 2019). As a result, the questionnaire comprises four neutral (transdisciplinary, transformation competence, change-orientation, lifelong learning), four communal (networking competence, customer orientation, cooperation skills, communication skills) and four agentic (self-responsibility, strategic thinking, technology trend assessment, data evaluation and analysis) digital leadership competencies. In the central part of the questionnaire, participants randomly assess twelve fictitious job advertisements, each of which presents a digital leadership competency from the inventory of connoted competencies. Each competence is embedded in two standardised sentences. The items of the dependent variable for measuring the intention to apply are presented below the job advertisements.

The questionnaire surveys the construct of application intention as a function of the connotation of digital leadership competencies. The operationalisation of application intention is based on the studies by Gaucher et al. (2011), Hentschel et al. (2019), and Hentschel et al. (2020), supplemented by Vroom's valence-instrumentality-expectancy theory (see Table 1).

Operationalisation of the "application intention"

Studies on connotated job advertisements	VIE-Theory	Dependant Variable
Interest in the position ¹	Valence	Interest
Expected application success ²	Instrumentality	Confidence
Job-related ability ³	Expectancy	Ability
Application intention ²	Motivation	Application motivation

Table 1: Overview of the operationalisation of the "application intention".

Source: ¹ Hentschel et al., 2018; ² Hentschel et al., 2020 and

³ Gaucher et al., 2011.

The four latent dependent variables were measured on a five-point rating scale. The items for measuring the variables were as follows: interest ("*The leadership position seems appealing.*"); confidence ("*I believe that if I applied, I would get the leadership position.*"); ability ("*I have the required skills.*"); application motivation ("*I would apply for this leadership position.*").

3.2 Data collection and analysis

The data collection took place in an online survey between 28/09/2023 and 11/10/2023. Participants were (1) students and employees who work in a (2) digital working environment and (3) are open to being a leader. These characteristics are necessary so that the participants (1)

have an affiliation with the application situation, (2) have a connection to digital leadership, and (3) consider a leadership career. Participants were offered an incentive in the form of a lottery.

The sample comprised 215 participants from career and women's networks, students of business-related degree programmes, a group of doctoral students, and employees in the public and private service sectors. Due to a lack of interest in leadership, missing gender information, professions without digital collaboration or insufficient processing of the questions (response time under 300 seconds or incorrect control item), the data of 44 people was omitted. This results in an adjusted sample size of 171 participants. More women (75.4%) than men (24.6%) took part in the survey, with the majority of participants belonging to the age cohort 25 years and under (67.3%). 76.6% of participants were students and 23.4% were employed. 7.0% of all participants stated that they worked in STEM professions.

4 Results

Table 8 provides an overview of the mean values and standard deviations of the dependent variables *application motivation*, *ability*, and *Lack-of-Fit*, grouped according to the independent variables *gender*, *age* and *STEM affiliation*. Only those values necessary for the inferential statistical analysis are shown to provide a better overview.

Descriptive statistics of the dependent variables (n = 171)

dependent variable	Total M (SD)	men M (SD)	women M (SD)	age ≤ 25 M (SD)	age ≥ 26 M (SD)	STEM M (SD)	non-STEM M (SD)
Application motivation	3.39 (0.57)	3.26 (0.55)	3.43 (0.57)	-	-	-	-
agentic	2.96 (0.76)	3.12 (0.73)	2.91 (0.77)	-	-	-	-
communal	3.76 (0.76)	3.47 (0.73)	3.86 (0.75)	-	-	-	-
neutral	3.45 (0.75)	3.20 (0.76)	3.53 (0.73)	-	-	-	-
Ability	3.64 (0.44)	-	-	-	-	3.7 (0.65)	3.6 (0.65)
agentic	3.26 (0.60)	-	-	-	-	3.8 (0.59)	3.2 (0.58)
communal	3.99 (0.59)	-	-	-	-	3.5 (0.66)	4.0 (0.56)
neutral	3.68 (0.56)	-	-	-	-	3.7 (0.70)	3.7 (0.55)
Lack-of-Fit	3.46 (0.40)	3.43 (0.39)	3.47 (0.40)	3.4 (0.62) ¹	3.6 (0.62) ¹	3.4 (0.56)	3.5 (0.62)
agentic	3.10 (0.57)	3.29 (0.65)	3.03 (0.53)	3.0 (0.54) ¹	3.1 (0.49) ¹	3.5 (0.59)	3.1 (0.56)
communal	3.79 (0.55)	3.60 (0.55)	3.85 (0.54)	3.8 (0.52) ¹	3.9 (0.59) ¹	3.4 (0.70)	3.5 (0.51)
neutral	3.50 (0.52)	3.41 (0.52)	3.53 (0.52)	3.4 (0.51) ¹	3.8 (0.49) ¹	3.3 (0.39)	3.8 (0.55)

Table 2: The dependent variable's means (M) and standard deviations (SD).

Note: ¹ n = 129 because Hypothesis 6 only considers female applicants.

In addition to the descriptive statistics of the dependent variables, Table 9 presents the sample composition, differentiated according to the independent variables *gender*, *age*, and *STEM affiliation*.

Descriptive statistics of the independent variables (n = 171)

frequency		absolute frequency F(n)			relative frequency f(n)		
gender		men	women	total	men	women	total
age	25 and under	21	94	115	50.0%	72.9%	67.2%
	26 to 35	14	29	43	33.3%	22.5%	25.2%
	36 to 45	4	5	9	9.5%	3.9%	5.3%
	46 to 55	-	1	1	0%	0.8%	0.6%
	56 to 56	3	-	3	7.1%	0%	1.7%
	66 and over	-	-	-	0%	0%	0%
STEM	non-STEM	36	123	159	85.7%	95.3%	93.0%
	STEM	6	6	12	14.3%	4.7%	7.0%
total		42	129	171	24.6%	75.4%	100%

Table 3: Absolute/relative frequencies of the independent variables differentiated by gender.

For the group of **hypotheses 1, 2 and 3**, the 2 (gender: male, female) x 3 (competence connotation: agentic, communal, neutral) analysis of variance for the extent of application motivation revealed a significant main effect for the factor competence connotation, $F(1.89, 319.56) = 37.98$, $p < .001$, $\eta_p^2 = .183$, as well as a significant interaction of competence connotation and gender, $F(1.89, 319.56) = 9.19$, $p < .001$, $\eta_p^2 = .052$. The main effect of gender was not significant, $F(1, 169) = 2.99$, $p = .086$, $\eta_p^2 = .017$.

A pairwise comparison of means revealed no significant difference in the application motivation of female and male applicants for digital leadership skills with agentic connotations, $t(169) = 1.45$, $p = .145$ (hypothesis 1). In line with the assumption of the second hypothesis, it was shown that female applicants had a significantly higher application motivation by 0.39 points than male applicants in the case of communal competence connotation, $t(169) = 2.92$, $p = .004$. Contrary to the third hypothesis, the application motivation of female applicants was 0.32 points higher than male applicants in the case of neutral competence connotation, $t(169) = 2.53$, $p = .012$.

Hypothesis 6 was initially intended to be tested in six age groups but was reduced to two-factor levels due to the low number of female applicants aged 36 and over. The 2 (age: 25 and under, 26 and over) x 3 (competence connotation: agentic, communal, neutral) analysis of variance for the extent of the lack-of-fit for exclusively female applicants shows a significant main effect of the age factor, $F(1, 127) = 6.36$, $p = .013$, $\eta_p^2 = .048$, as well as a significant main effect of the factor of competence connotation, $F(1.83, 232.74) = 98.73$, $p < .001$, $\eta_p^2 = .437$. The interaction of age and competence connotation is not significant, $F(1.83, 232.74) = 1.91$, $p = .155$, $\eta_p^2 = .015$. The hypothesis of the higher perceived fit of older female applicants can be accepted.

Hypotheses 7 and 8 assume a main effect of the STEM occupation factor on the perceived fit (lack of fit) on the one hand and the self-assessment of the ability of female applicants on the other. Due to the minimal number of cases of six female persons in STEM professions, no reliable statements can be made about the group of exclusively female applicants. Therefore, rejecting or confirming the seventh and eighth hypotheses is impossible.

The assessment of the internal consistency of the connotation grouping of digital leadership competencies revealed that none of the defined scales (connotation groups) achieved an acceptable Cronbach's alpha coefficient. Therefore, a final **exploratory examination of individual digital leadership competencies**, detached from their connotation, was conducted with the dependent variable of application motivation.

The analysis of variance for the extent of application motivation shows a significant main effect of digital leadership competence, $F(8.86, 1496.91) = 22.67, p < .001, \eta_p^2 = .118$, and a significant interaction between gender and digital leadership competence, $F(8.86, 1496.91) = 4.69, p < .001, \eta_p^2 = .027$. The main effect of gender is not significant, $F(1, 169) = 2.99, p = .086, \eta_p^2 = .017$. The competencies *communication skills* ($t[169] = 2.08, p = .040$), *customer orientation* ($t[169] = 3.53, p < .001$), *cooperation skills* ($t[169] = 2.24, p = .026$), *technology trend assessment* ($t[169] = 3.54, p < .001$) and *self-responsibility* ($t[169] = 2.02, p = .045$), have significant effects on the application motivation of female applicants, compared to male applicants. In four of the five significant differences, the application motivation of females is higher than that of males (communication skills: 0.38 points; customer orientation: 0.70 points; cooperation skills: 0.36 points; self-responsibility: 0.37 points). Male applicants are 0.76 points more motivated to apply for technology trend assessment.

5 Discussion

When **comparing the genders**, the results show that the connotation of the required digital leadership competencies influences female applicants' evaluation of the job advertisement. Women are the least motivated to apply for agency job advertisements and the most motivated to apply for communal job advertisements. Male applicants' motivation to apply differed not depending on the connotation. It appears that men are less orientated towards gender-specific role stereotypes and, therefore, less influenced by the connotation of digital leadership competencies (Born & Taris, 2010; Hentschel et al., 2020). Conversely, these results suggest that communal leadership tendencies can increase a female applicant's attractiveness assessment of a leadership position.

The comparison of male and female applicants for *digital leadership competencies with communal connotations* supports this assumption. Women show a higher motivation to apply for communal competencies. (Born & Taris, 2010; Damelang & Rückel, 2021) Considering the

lack-of-fit model, the stereotypical self-perception of women and men can contribute to interpreting these results. Women attribute the communal characteristics of "concern for others" and "emotional sensitivity" significantly more strongly to themselves (Hentschel et al., 2019). The communal self-attribution of female applicants, in combination with the communal requirements of the job advertisement, lead to a high level of role congruence. This results in a high assessment of fit (lack of fit) and, ultimately, a high intention to apply.

Compared to men, women are equally motivated to apply for *digital leadership competencies with agentic connotations*. The equally strong application motivation contradicts the initial assumption that agentic digital leadership competencies have a deterrent effect on female applicants (Born & Taris, 2010; Damelang & Rückel, 2021; Gaucher et al., 2011; Hentschel et al., 2020). An explanation for the equal intention to apply can be found by looking at the motivation to apply for individual digital leadership competencies. Compared to men, women are more strongly motivated to apply by the competence "self-responsibility" and less strongly by the competence "technology trend assessment". On average, there is no difference in the agentic application motivation of both genders. However, when looking at the technically associated competence in isolation, the significant difference indicates that the idea behind the hypothesis cannot be rejected entirely. Technical competencies have the potential to have a deterrent effect on female applicants.

Women are more motivated to apply for neutral digital leadership competencies than men. The higher motivation to apply contradicts the original assumption that implicit agentic leadership theories dominate the neutral digital leadership competencies. In line with the phenomenon of levelling stereotypes of male and female leaders, the results point to a less agentic general understanding of leaders (Eagly & Sczesny, 2009; Mai et al., 2017).

Implicit leadership theories become less stereotypical with **age** due to more experience with different leaders. As individuals gain exposure to diverse leaders, their implicit leadership theories become more androgynous, and they are less likely to self-select based on stereotypes (Koenig et al., 2011). Given the limitations of the young age of the sample (91.5% of women under the age of 25), the available data indicate that traditional assumptions (still) predominate in the implicit leadership theories of younger women.

Based on the collected data, it is impossible to make reliable statements about the effect of digital leadership competencies on women in **STEM professions**. However, the *descriptive data* suggests a gender-specific difference in the impact of digital leadership competencies. Belonging to a STEM profession appears to have only a minor positive effect on women's agentic self-perception, which contradicts the initial assumption. At the same time, women in STEM professions attribute communal characteristics to themselves much less strongly than

other women. These descriptive tendencies indicate that women, despite their STEM affiliation, embody the stereotype of lacking communal characteristics more strongly and attribute only slightly agentic characteristics to themselves. If further studies confirm these descriptive trends, it would suggest that STEM affiliation negatively impacts the overall female applicants' intention to apply for digital leadership.

It should be noted that only individuals with an **interest in leadership** participated in the survey. Mai et al. (2017) conducted a study to analyse the differences between female and male leaders in the dimensions of the Big Five³ and whether there are differences for women who do not lead. In summary, female and male leaders have similar personality profiles, with women over-fulfilling those competencies of a leader that are stereotypically ascribed to them less. At the same time, women in leadership positions differ from the general female population in that they have a more agentic personality profile (Mai et al., 2017). Although 93% of the sample had not previously held a leadership position, their interest in leadership may be linked to a corresponding personality profile. The assessment of the attractiveness of digital leadership positions may have been higher due to the more agentic personality of the female applicants. If a job advertisement aims to attract female applicants interested in leadership, this should not be an issue. However, it is unclear how many women do not develop an interest in leadership due to implicitly agentic leadership theories. Such women would self-select before even reading the job advertisement. The increasing focus on the communal characteristics of a digital leader could counteract this as implicit leadership theories become more androgynous (Burel et al., 2020; Gierke, 2020; Koenig et al., 2011; Mai et al., 2017; Reimer & Onaran, 2020).

5.1 Limitations

The distribution of participant's characteristics in the sample is uneven, limiting the result's *external validity*. This uneven distribution applies to professional status, age, and STEM affiliation but not to gender, as both groups were sufficiently represented. The online questionnaire survey partially meets the quality criteria of quantitative research. Using theoretically sound digital leadership competencies, their standardised embedding in the fictitious job advertisement, and the repeated measures design justify good *internal validity*. It can be assumed that the measured effects are due to the variation in digital leadership competencies in the fictitious job advertisements. The questionnaire's *reliability* is limited due to the low internal consistency of the connotation groups of digital leadership competencies. However, it was possible to interpret the results by exploring the individual digital leadership competencies. The use of a standardised online questionnaire and pooled static methods ensures *objectivity* in the evaluation process.

³ Conscientiousness, agreeableness, neuroticism, openness to experience, extraversion.

5.2 Implications

The contrast between the deterrent effect of technical competence on women and their frequent use in job advertisements is problematic (Gilli et al., 2022). Despite their frequent use, technical competencies are not leadership skills but basic labour market skills not limited to management positions. (Imbery et al., 2022) Therefore, companies should avoid generalising technical skills for management positions to prevent unconsciously discouraging female applicants from applying.

It is important to note that the concept of leadership alone does not necessarily discourage female applicants; stereotypical assumptions, however, may still impact female applicants. Nevertheless, specific contextual factors can help to mitigate this effect on the intention to apply (Damelang & Rückel, 2021). For instance, the assessment of female applicant's attractiveness is positively influenced by flexible working time models and female role models. Digital leadership characteristics involve flexible working arrangements in terms of time and location (Gierke, 2020). Therefore, digital leadership promotes a more inclusive approach to leadership. Here, the role of companies is to stay up to date with developments and emerging opportunities. Additionally, future research could investigate the impact of communally connoted digital leadership competencies in relation to contextual factors. To improve the understanding of contextual influences, one possible qualitative approach is to conduct interviews on expected application success.

5.3 Conclusion

The master's thesis offers scientific insight and a practical outlook on the effect of connoted digital leadership competencies in job advertisements on the application intention of female applicants. It was found that communal competencies, such as 'communication', 'customer orientation', or 'cooperation', positively affect the perceived attractiveness of the job. Competencies with agentic connotations, such as 'personal responsibility' or 'strategic thinking', do not discourage applicants from applying. These results confirm the postulated statements on the feminisation of digital leadership. One limitation lies in the technical skills that may deter women from applying. The latter are not exclusively digital leadership competencies, so their blanket use in job advertisements should be reconsidered.

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