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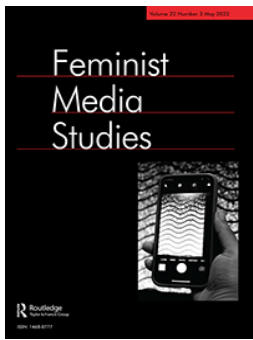
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A woman's got to write what a woman's got to write: the effect of journalist's gender on the perceived credibility of news articles

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ABSTRACT

This study investigates the effect of journalists' gender on the perceived credibility of news articles. In an experiment, participants evaluated the credibility of two different news articles with a typical male and female topic *either* written by a female or male journalist. News articles written by male journalists were perceived as significantly more credible overall, but especially when the article had a typical male topic. Both effects were stronger for female participants than for male participants. Younger male participants rated female journalists overall as less credible compared to older male participants. The experiment highlights that audiences still have a preconceived idea about what female journalists are meant to report about, while generally giving preference to male journalists. This underlines the need for a better visibility of female journalists in all areas of reporting to viably change these perceptions.

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Introduction

When a media outlet is not perceived as credible, its audience will decline (David Weibel, Bartholomäus Wissmath & Rudolf Groner 2008). This study investigates a factor that may partly determine this credibility—the journalist's gender. Initial studies focusing on gender as a credibility factor lead back to 1968 and found that articles written by female journalists were often deemed less credible (e.g., Philip Goldberg 1968). However, traditional gender roles were much more rigid compared with today. This study thus contributes to existing research by illuminating whether the changing gender roles in society are visible in journalism, in particular the audience's perception of it. While the profession used to be male-dominated (Anne Sebba 1994), this drastically changed over the last decades. Currently, a vast majority of journalism graduates is female (Kodwo Jonas Anson. Boateng 2017).

Nevertheless, gender dynamics in journalism are still asymmetric; in most countries, only a small percentage of female journalists make up the media landscape (Maria Edström 2017; Nikki Usher, Jesse Holcomb & Justin Littman 2018). The Global Media Monitoring Project (2015) showed that worldwide, women only report around 37% of all stories in print, television, and radio combined. Additionally, previous research found that the majority of women in the newsroom are delegated to cover

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stereotypical female topics (e.g., lifestyle and fashion) while men continue to dominate male topics (e.g., technology and economics, see Louise North 2016; Linda Steiner 2012).

Despite loosening gender roles in society, the question arises if news consumers are still influenced by the gender factor in journalism. The aim of this study is, thus, to examine whether the gender of the author impedes on the perceived credibility of an article. While maximizing credibility is important for the industry and the role of gender is an obvious topic for scholars of journalism, investigating this relationship is also an essential step to evaluate to what extent gender stereotypes still persist in Western societies. After all, existing research about gender differences in print journalism is outdated, with most studies being over 30 years old. Recent research investigating the effect of gender in journalism focuses on TV newscasters and, consequently, has the tendency to concentrate on appearance. Through the omnipresence of mobile phones and tablets, however, written journalism is becoming increasingly important again. By reassessing the influence of a journalists' gender in online journalism, this study serves as a new starting point in contemporary research.

Previous research: journalism and gender

The first experiment on the effect of journalists' gender on audience approval was conducted in 1968 by Philip Goldberg among *female readers*. Women who were exposed to stimuli of professional articles either written by John McKay or Joan McKay consistently rated the article of John higher than the article written by "Joan." This experiment was replicated various times; however, opposing results were frequently yielded. Many studies, actually, did *not* find any differences between the evaluations of male and female authors (e.g., Grace G K. Baruch 1972; D S. Chobot, et al. 1974) or found that female participants rated articles written by women to be better (Hanna Levenson, Hanna Levenson, et al. 1975). Michelle A. Paludi & William D. Bauer 1983 also included male participants into their sample and concluded that both men and women rated articles written by a male author as more favorable.

Goldberg's results and replications were subject to a meta-analysis by Janet Swim, Janet Swim, et al. 1989. They analyzed 123 studies published between 1974 and 1985 and found that many results were insignificant, signaling that Goldberg's initial findings are often interpreted as more decisive than they should. Consequently, the present study sees Philip Goldberg's (1968) experiment and its replications as a starting point.

Concretely, we build on research that investigates the mentioning of gender in bylines (i.e., the author's information at the beginning of an article) and its influence on the evaluations of news stories. Results were similarly inconclusive. Whereas Donald L. Shaw, Donald L. Shaw, et al. 1981 showed that male participants made more stereotypical judgments based on female bylines, F N. Burkhardt & C K. Sigelman 1990 found articles to be evaluated similarly regardless of a male or female byline. These studies are characterized by ambiguous measurements, which could partly explain the lack of significant findings. The present study, in contrast, uses the well-structured concept of credibility as a dependent variable to evaluate news articles.

Gender and credibility

Carl I. Hovland, Irving L. Janis and Harold H. Kelley 1953 found that people are more likely to believe a fact if the source itself is seen as credible, which was determined by the source's *expertise* and *trustworthiness*. Since then, the concept of source credibility has been extended into three- or five-dimensional constructs by several scholars (e.g., D K. Berlo, J B. Lemert & R J. Mertz 1969). Medium credibility, on the other hand, was first measured by Cecilie Gaziano & McGrath. Kristin 1986 and shortened into five dimensions by Philip Meyer 1988: A news item is deemed credible if it is *unbiased*, *accurate*, *fair*, *tells a whole story* and *can be trusted*.

However, only little contemporary research investigated the influence of author's *gender* on the credibility of a journalistic piece. This work often relied on individually designed scales to measure the outcome variable; thus, hampering comparability. Using credibility as a measure to rate articles allows for a more consistent comparison across studies. Julie Andsager 1990 investigated the perceived credibility of male and female political columnists. She observed the tendency that male participants rated articles with a male byline to be more credible than those with a female byline. A follow-up study found that females, in contrast, preferred columns written by other women (H.Allen White and Julie Andsager 1991).

Most recent research investigates the perceived credibility of newscasters (e.g., Maria Brann & K L. Himes 2010). Weibel et al. (2008) found that while male newscasters were seen as more credible *themselves*, the *messages* read by them were however perceived as less credible compared to messages read by female newscasters. Due to the mixed—and perhaps outdated—results of previous research, this study re-assesses the question whether and to what extent gender stereotypes influence people's evaluation of journalistic work in the current day and age. Given the changes in journalism (i.e., move toward digital) and societal developments that gender roles have undergone in recent years, this relationship could potentially have changed too. Above all, little to no research has explored whether there are characteristics apart from readers' gender that influence the perceived credibility (e.g., Madeleine Gross and Robert A. Geffner 1980; Weibel et al. 2008). The present study attempts to advance this field of research by incorporating relevant article (i.e., gender and topic) and reader (i.e., gender and age) characteristics as moderating factors.

Hypotheses

Traditional gender roles stem from the patriarchal notion of the public versus private sphere (Josephine Donovan 1992). Stereotypically, women were responsible for the private sphere including the home and the family, whereas men guarded the public sphere in government and the political realm (Jacquie Smyth 2008). Albeit gender roles are slowly changing, these stereotypes are still incorporated into people's opinions, often expressed by the assumption that men and women have different interests. Jack E. Orwant & Muriel Cantor 1977 proved this by asking communication students to judge men's and women's interest in journalism. They found that women were consistently judged as less interested in politics and business, and more interested in fashion and cooking. If this opinion is still engrained in people's minds, it could be extended to

the idea that male and female journalists should also report more credibly about these separate topics.

This pattern is very visible in the media landscape: Content analyses demonstrated that male news anchors are more frequently assigned to hard news, whereas female anchors are associated with soft news (e.g., Catharine Lumby 1994; Louise North 2016). A clear distinction exists between topics that are considered female and male, and are thus allocated to female or male journalists, respectively. As argued by Monika Djerf-Pierre 2007, this distinction stems from the notion of the public versus private sphere: Masculinity is associated with power, prestige and status, and male journalists are therefore assigned to cover topics associated with those characteristics.

Politics, economy, or technology are typically considered male-orientated news topics (Louise North 2016). On the contrary, stories about fashion, childcare, or cooking are considered female-orientated topics (D J. Cann & P B. Mohr 2001). Previous research using articles with typically male and female topics showed that when the topic did not fit with the author's gender, the articles were rated more negatively (Philip Goldberg 1968; Shaw et al. 1981). This phenomenon is based on role-congruity theory (A H. Eagly & S J. Karau 2002), which posits that if authors write about topics that are seen as incongruent with their gender, skepticism about the article's credibility will be elicited. Studies on role-congruity theory have demonstrated such gender biases in other fields, for example biases against female scientists (Bryan A. Nosek, et al. 2009) or in scholarly communication (Silvia Knobloch-Westerwick & Carroll J. Glynn 2013). Testing this within the realm of journalism, the first set of hypotheses is as followed:

H₁: Articles written by authors on gender-congruent topics are perceived as more credible compared to articles written by authors on gender-incongruent topics.

H_{1a}: An article with a typically male topic is perceived as more credible when written by a male as opposed to a female author.

H_{1b}: An article with a typically female topic is perceived as more credible when written by a female as opposed to a male author.

A personal characteristic found to, generally, influence the evaluation of the news is the audience's gender. Most studies indicate that male readers make more stereotypical judgments (e.g., J L. Andsager & Teresa Mastin 2003) and rate articles written by males higher in credibility (e.g., C L. Armstrong & M J. McAdams 2009). Generally, similarity with the source, or in this case author, increases the perceived credibility (Kelly Aune & Toshiyuki Kikuchi 1993). Furthermore, men are believed to use more heuristic cues (i.e., stereotypes) in information processing (C L. Armstrong & M R. Nelson 2005) and generally hold more traditional gender views than women (Catherine I. Bolzendahl & Daniel J. Myers 2004). As a result, the following hypothesis will be tested:

H₂: The role-congruity effect will be stronger for male as opposed to female readers.

Additionally, age of audiences could influence their assessment of news credibility. K E. Bettencourt, et al. 2011 showed that age relates to people's attitudes towards

feminism: Younger people have a more positive attitude towards feminism, because the older generation has grown up with more traditional views on gender and family (Livia S. Oláh, Irena E. Kotowska & Rudolf Richter 2018). Several other studies yielded a similar conclusion (F. H. Dambrot, M. E. Papp & Cheryl Whitmore 1984; Janet T. Spence & Robert L. Helmreich 1979). However, these gender roles have changed significantly, as more children are growing up with working mothers, caretaking fathers or in a single-parent family (Marion C. Willetts-Bloom & Steven L. Nock 1994). In one of the replications of Goldberg's study, participants were split into students versus older people (Gross et al. 1980). They found that older participants evaluated female authored articles less positive compared to the younger group. This leads to the third hypothesis:

H₃: The role-congruity effect will be stronger for older readers.

Method

A randomized online experiment with between-groups 2×2 factorial design was conducted between 2 and December 6 2018. Manipulated factors consisted of the author's gender (male vs. female) and article topic (technology vs. fashion), which were selected after a rigorous process of pilot testing prior to the main experiment.

Pilot study: selecting the stimulus materials

Topic

Four topics were chosen that were deemed to be typically male (technology and banking) or female (childcare and fashion). For each topic, a short article based on existing news stories was created, resulting in an article about *Tesla's* profits in 2018, a *Goldman Sachs* scandal, social media bans for nannies, and the launch of a new *H&M* collection.

A pilot study with 34 participants was administered to assure that the selected stimuli for the actual experiment accurately reflected the theoretical intentions of this study. To avoid bias, none of the participants participating in the pilot study were allowed to take part in the main experiment. Similar to Michelle A. Paludi & Lisa A. Strayer 1985, participants were randomly assigned to two of the four news article topics and assessed whether they thought the article was written by a male or a female author. The results showed clear indications for three of the four topics. Respectively, 89.5% and 87.5% of participants indicated that the *Tesla* and *Goldman Sachs* article were written by a male author. Similarly, 82.4% indicated that the *H&M* article was written by a female author, while the article with childcare as topic yielded a more decisive pattern (43.8% indicated a female author, 56.3% a male author). This straightforward approach, thus, helped us to select topics that were clearly perceived to be male-oriented or female-oriented. With the exception of childcare, the vast majority of participants in the pilot study believed that the author of a certain article was either a man or a woman. Thus, we could conclude that people had a preconceived idea of who writes about what, which is precisely what this study aimed to manipulate.

Similar to White et al. (1991), participants were asked to rate to what extent they believed the article was a men's or a women's topic. As the participants were asked to rate two articles each, a paired samples *t*-test allowed for a direct comparison. A significant difference was found between the articles about *Tesla* and *H&M*: The *Tesla* article was perceived to be more of a male topic ($M = 2.50$, $SD = 0.55$) than the *H&M* article ($M = 3.67$, $SD = 0.52$). This was a strong statistical effect, $t(5) = -3.8$, $p = .013$, Cohen's $d = 1.56$. All other topic pairs did not show significant differences. Accordingly, we could select the strongest stimuli for the main experiment: The article with the technology topic (*Tesla*) should serve as a typically male topic, and the article about fashion (*H&M*) as a typically female topic. Given the length and style of the articles, as well as the pilot study's results, the articles and their topics are comparable, adding to the measurement validity of the study.

Gender

The pilot study also included the assessment of four different author photos to assure that the gender of authors in the main experiment would be accurately identified. The photos were constructed using *FaceApp* and *Photoshop* to design two female-male pairs with the same facial features, but a different gender. Based on existing scales (Roobina Ohanian 1990; Stephen Reysen 2005), participants had to rate one male and one female photo from different pairs on four dimensions: *competent-incompetent*; *knowledgeable-unknowledgeable*; *likable-unlikeable*; *approachable-unapproachable*. In line with Stephen Reysen's (2005) likeability scale & Roobina Ohanian's (1990) expertise scale, these dimensions were accordingly transformed: one expertise scale ($\alpha = 0.86$, $M = 8.18$, $SD = 2.72$) and one likeability scale ($\alpha = 0.89$, $M = 9.82$, $SD = 3.88$), compromising all items. Independent samples *t*-tests were performed to verify that the two corresponding author were rated similarly on these dimensions. For the first author pair, significant differences between both scale measures were found. The second author pair yielded no significant results for likeability, $t(31) = 0.27$, $p = .788$, nor expertise, $t(31) = 0.18$, $p = .862$. As a result, the second pair of author photos was used, as they were rated to be similar in all dimensions while still reflecting a different gender. This pilot study results, thus, allowed the creation of gender manipulated stimuli that rule-out alternative explanations of effects in the main experiment.

Based on these results, four stimuli were constructed for the final study. Both the *Tesla* and the *H&M* article were used twice; once including a male author name (Daniel Evans, or Daniel Beck in the German translation) and accompanying male photo, and once including a similar female name (Danielle Evans, or Daniela Beck in the German translation) with the matching photo. The author names were chosen based on the most popular first and last names in the UK and Germany around 1980 to match the approximate age of the pair in the photos. Articles were designed to reflect an online news article but without any additional layout to not compromise the study's internal validity. Stimuli were originally created in the English language; a translated version in German was created for the anticipated large group of participants from Germany in the main experiment.

Sample

To achieve a diverse sample with variance on age and political ideology, focus was put on reaching participants covering different aspects of the population. To assure that the

majority of all participants filled out the questionnaire in their native language (81%), the questionnaire was sent out in both English and German. Those who filled out the survey in another language than their mother tongue, were most likely international students fluent in the English language; thus, it is assumed that this had a minor influence on the results. Participants were recruited via social networks and email, using the snowballing technique.

In total, 226 participants took part in the experiment of which 118 were female (57.1%), 87 male (42.4%) and one gender fluid (0.5%). People who failed the manipulation check ($n = 21$) were excluded from the study, leaving a final sample of 205 participants. Participants came from 21 countries, with 147 participants from Germany (71.7%), 13 from the Netherlands (6.3%), and 10 from Italy (4.9%). The remaining 35 respondents were from other European countries as well from North America, Asia, and Australia. Participants' age ranged from 18 to 68 years ($M = 30.78$; $SD = 12.81$): The majority of 154 participants were between 18 and 32 years old (75.1%), followed by 15 participants between 33 and 45 years (7.3%), and 36 participants were between 46 and 68 years old (17.6%). Education level was diverse, with most participants having a high-school degree (26.8%), followed by a Master's degree (24.4%), and a Bachelor's degree from a university (24.4%) or a university of applied sciences (17.1%). A small minority obtained less than a high-school degree (6.3%) or a PhD degree (1.0%). Finally, the participants' political orientation was measured on a scale from 1 (*left-wing*) to 11 (*right-wing*) and showed a slightly more left-wing sample ($M = 4.24$; $SD = 1.69$). Randomization checks verified that the participants were evenly distributed across the four conditions regarding age, $F(3, 204) = 1.54$, $p = .207$, gender, $\chi^2(1, 205) = 7.14$, $p = .308$, and political orientation, $F(3, 204) = 1.09$, $p = .356$.

Measures

Perceived credibility

Credibility of the randomly assigned news article was assessed using an adaptation of Andrew J. Flanagin and Miriam J. Metzger 2000 five-item scale. Participants were asked to what extent they found the article to be (a) accurate, (b) trustworthy, (c) biased, (d) comprehensive and (e) believable on 7-point Likert scales ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Scores for bias were reverse-coded, so that a higher overall score adhered to the perception of more credibility ($\alpha = 0.74$, $M = 4.65$, $SD = 1.01$).

Manipulation check

To assure that stimuli were perceived as intended, the final set of questions contained the manipulation check. These questions were asked completely by the end of the questionnaire; thus, after the dependent variable was already measured and, thereby, it could not possibly foreshadow the actual purpose of the experiment nor influence the results. Participants were asked whether they remembered the topic of the article, and had to choose between *politics*, *health care*, *sports*, *economics*, *fashion*, and *I do not remember*. Furthermore, participants were asked about the gender of the author, choosing between *male*, *female*, *There was no sign of the gender of the author* and *I do not remember*. To guarantee the validity of the measurement, participants were *not* able to go back in the questionnaire to confirm the topic or gender of the author.

As in any experiment, it was vital that participants correctly remembered both the topic as well as the author of the study to rule out any errors in the internal validity of the study. The manipulation check showed that 80.1% of all participants recognized both the right topic, $\chi^2(2, n = 205) = 201.99, p < .001$, and the correct gender, $\chi^2(2, n = 205) = 180.90, p < .001$, which reflects that people read the articles carefully. Moreover, this illustrates that the vast majority of readers did take note of an author's gender when reading a news article. Ten participants did not remember the topic or chose a wrong topic while also indicating that they did not remember the gender of the author. Seven participants chose the wrong gender, while four said there was no indication of an author at all. As it is assumed that those participants did not read the article properly (i.e., manipulation could not succeed), they were excluded from the study.

Finally, 26 respondents said they did not remember the author's gender. The decision was made to not to delete these participants as they did not remember a wrong gender, and thus did not base their answers on a wrong memory. As a result, it is assumed that they could have unconsciously been influenced by the gender without consciously noticing it. Interestingly, of all conditions most people (20%) did not remember the male author writing about Tesla. Contrary, only 8.3% of participants could not recall the female author with the same article. Arguably, if the author fits with the topic, people pay less attention to it, whereas it is more noticeable when the fit is incongruent.

Results

Main effect: gender congruity

The first analysis tested whether articles with gender-congruent topics were perceived as more credible than articles with gender-incongruent topics. Thus, the gender-congruent articles (*Tesla* article written by a man and *H&M* article written by a woman) were compared to the gender-incongruent topics (*Tesla* article written by a woman and *H&M* articles written by a man). The independent samples *t*-test found no significant difference, $t(199.80) = -1.48, p = .140$. Accordingly, Hypothesis 1 was rejected: Gender-congruent articles were not evaluated significantly more credibility ($M = 4.76, SD = 0.89$) than the gender-incongruent articles ($M = 4.55, SD = 1.10$).

To test whether the effect of authors' gender was conditional upon article topic, a two-way analysis of variance (ANOVA) was performed with the author's gender and article topic as fixed factors. Table 1 gives an overview of the mean differences between the four stimuli. The table shows that, overall, both articles written by a male author were seen as more credible. Indeed, a main effect was found of gender on credibility of the article, $F(1, 201) = 4.86, p = .029, \eta^2 = .024$. The articles written by a male journalist were perceived as more credible ($M = 4.80, SE = 0.10$) than those of the female journalist ($M = 4.49, SE = 0.10$), irrespective of topic.

Although no effect was found of the topic on credibility, $F(1, 201) = 2.21, p = .139$, the close-to-significant interaction between author's gender and topic, $F(1, 201) = 2.78, p = .097, \eta^2 = .014$, indicates that the effect of gender is stronger for one topic than for the other. Examining the mean credibility scores in experimental conditions, it appears that the difference is particularly strong regarding the article about technology. For instance, the *Tesla* article written by a female author was seen as least credible overall.

Table 1. Effects of gender and topic on the perceived credibility of news articles.

		<i>M</i>	(<i>SD</i>)	<i>N</i>
Tesla article	Male author	4.81	(0.84)	50
	Female author	4.27	(1.11)	48
H&M article	Male author	4.78	(1.04)	59
	Female author	4.71	(0.94)	48
Total		4.65	(1.01)	205

Concretely, a Bonferroni posthoc comparison revealed a significant difference in credibility ($M_{\text{difference}} = 0.54, p = .008$) between the *Tesla* article written by a male and female author. As a result, Hypothesis 1_a was confirmed. No such a significant difference was found, however, between both the fashion articles about *H&M* written by male and female author ($p = .698$). Thus, Hypothesis 1_b was rejected. This leads to the conclusion that the role-incongruity effect only applies for male topics.

Moderation: gender of the participants

To test whether the role-congruity effect was stronger among male than female participants, a two-way ANOVA was performed with participant's gender as a moderator variable and role-(in)congruity as the independent variable. The main effect of participants' gender was only marginally significant, $F(1, 200) = 2.99, p = .085$ —female readers perceived the articles slightly more credible ($M = 4.74, SD = 0.99$) than the male readers ($M = 4.52, SE = 1.02$). Results, however, did not confirm a statistically significant interaction effect between participants' gender and role-congruity, $F(1, 200) = 0.11, p = .746$.

Since an across-the-board significant difference was found for the author's gender but only regarding the male topic, the decision was made to test this effect for male and female participants separately using two independent *t*-tests. Testing only male participants showed no significant results, $t(41) = 2.03, p = .182$: Thus, male participants did not rate the credibility of the *Tesla* article written by a man ($M = 4.70, SD = 0.86$) to be significantly higher than the same technology article written by a woman ($M = 4.28, SD = 0.86$), albeit the mean differences point in the hypothesized direction. Surprisingly, the same test for female participants *found* a significant difference, $t(53) = 2.46, p = .017$: Female participants rated the credibility of the *Tesla* article written by a man ($M = 4.93, SD = 0.81$) to be significantly higher than written by a woman ($M = 4.26, SD = 1.10$). Female participants, thus, were more sensitive to the role-congruity effect for male topics.

Further analysis found that when both articles written by a male author were compared with both articles written by a female author, male participants did *not* view articles written by a male author to be more credible, $M_{\text{difference}} = 0.23, p = .295$. However, female participants *did* perceive the articles written by the male author as more credible ($M = 4.93, SE = 0.13$) than those by the female author ($M = 4.54, SE = 0.13$), $p = .034$.

Moderation: age of the participants

To test whether the role-congruity effect of H_1 was stronger among older participants, a moderation analysis was conducted with PROCESS Model 1 (Hayes 2018). The interaction effect between role-congruity and age was insignificant, $b = -0.002$, $t(201) = -0.24$, $p = .810$. The difference in credibility between gender-congruent and gender-incongruent topics remained equal across ages. Hence, the effect of congruity is not conditional upon age and H_3 was rejected. Additionally, we tested whether age influenced the perception of credibility of all articles written by a male author compared to all articles written by a female author. The interaction effect was also insignificant, $b = -0.017$, $t(201) = -1.63$, $p = .104$. Thus, age does not moderate the effect of the author's gender on perceived credibility of a news article.

When exploratory looking at female and male participants separately, a clear difference was found. While the age of female participants did not play a role in the evaluation of male versus female authors, a significant interaction effect was found among male participants. The interaction effect of age and author's gender was significant, $b = -0.04$, $t(83) = -2.49$, $p = .015$. Figure 1 visualizes this effect and shows that the older the male participants, the more credible the female author was evaluated while the male author's credibility decreases. This tendency was reversed for younger male participants: They perceived the articles by the female author as significantly less credible.

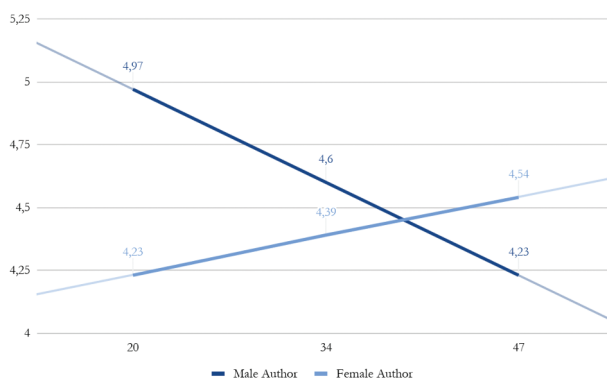


Figure 1. Effect of male participant's age on the credibility of male versus female authors. The y-axis denotes the perceived credibility and the x-axis denotes the male participant's age.

Discussion

This study investigated whether the perceived credibility of a news article is conditional on the author's gender, especially in combination with an article topic that is either congruent or divergent from the gendered role expectations. It was found that role-congruity only applies to female journalists: An article about a typical male topic is seen as significantly less credible if it is written by a woman. In contrast, a male journalist reporting on a female topic does not suffer from a negative impact on the credibility.

Our findings, thereby, coincide with previous research, where male journalists were consistently rated higher if the topic was considered male (e.g., Swim et al. 1989).

The present study demonstrates a discrepancy in role expectations between women and men in the journalistic field. As female journalists are *still* more likely to be assigned to specific topics coherent with a female gender role (Louise North 2016), a divergence from that role is noted by the audience. Male journalists, on the other hand, seem to have less rigid role expectations and, thus, are freer in what they can report about credibly.

Additionally, this study has shown that irrespective of the article's topic, less credibility is given to female journalists overall. This tendency was observed by earlier research too, but predominantly in the context of male and female TV newscasters (Brann et al. 2010; Weibel et al. 2008). The present study included author photos, which may have strengthened the gender manipulation compared to previous studies that only manipulated the author's byline. The clear results display that the audience still regards journalism to be more of a male-dominated profession. This coincides with the minority figures of female journalists in many newsrooms (e.g., Global Media Monitoring Project 2015), and emphasizes the need for an increased visibility of female journalists.

Distinguishing between the female and male *readers* yielded interesting findings. While previous research led to the assumption that male participants would portray more stereotypical perceptions (Armstrong et al. 2009), this study found the opposite. Results indicate that female participants were more critical towards female journalists—not only in the context of a woman writing an article about a male topic, but also less credibility for female journalists overall. It seems that since Goldberg's discovery in 1968—in a journalistic context, women are prejudiced against women—not much has changed. Albeit women might be consciously aware of gender inequalities, this indicates that implicit biases derived from a patriarchal societal structure may overrule conscious thoughts. Such implicit cognitive biases of women against women have earlier been demonstrated in experiments surrounding workplace hiring (e.g., Corinne A. Moss-Racusin, et al. 2012) and women's self-placement in seemingly gender-incongruent subjects, such as mathematics (Bryan A. Nosek, Mahzarin R. Banaji and Anthony G. Greenwald 2002).

What is perhaps most surprising about these results is that women showed even more prejudice against female journalists than men showed, whereas most previous studies found that both men and women are similarly prejudiced against female journalists (e.g., Paludi et al. 1985). Nevertheless, there is some research from other fields that found similar results as us—specifically in the context of performance evaluation. A study by Gail I. Pheterson, Sara Kiesler & Philip Goldberg 1971, for example, showed that women's entries of paintings for a competition were consistently rated worse by female participants. Similar results were found in the context of workplace success (Sheryl Sandberg 2013) and attractiveness (Tracy Vaillancourt and Aanchal Sharma 2011) where a tendency of women being severely critical towards other women was the norm. These findings, together with ours, can be explained by the insights of a qualitative study conducted by Emanuela Spanò 2017 in the academic context: This study revealed that female interviewees agreed that they felt a strong competitiveness between women in academia. However, the our experiment was different, as the women were not comparing themselves to a direct female competition. Thus, future

research should focus on whether this competitiveness or alternative psychological processes might have been at work here.

Another potential explanation for the negative evaluation of the female journalist by female participants might also be found in the sample of the study: Respondents were predominantly from Germany—a country in which gender roles are still quite traditional; for example, shown by its high number of stay-at-home mothers (Patricia Boling 2015). The conservative nature of our sample might have been further exacerbated by the applied snowballing sampling technique, which had the consequence that many German respondents were from the Bavarian region that is commonly known to be the most conservative German state. This, in turn, might explain why the female participants in our study were more negative towards the female author: Previous research found that traditional women, in particular, evaluate female leadership more negative compared to non-traditional women (Virginia Cooper 1997).

Women who prescribe to these traditional gender roles may disapprove of women following the career path and working full time. Since respondents from all other countries were pooled together, however, the potential cultural differences were disregarded in this study. Future studies with less budgetary constraints should take national context into account by purposefully sampling from more and less conservative countries or regions. Yet, our findings already warn that a double bias might possibly exist: Female readers do not perceive female journalists credible, but female journalists have also been found to produce news with a gender bias unfavorable for female sources (Priyanka Kalra & Mark Boukes 2020).

Generally, the current sample of participants is a limitation that needs to be addressed, as it was not representative of the population. Due to the convenience sample, the sample was slightly skewed in terms of education, political orientation, and age. Given previous research on factors adding to gender stereotypes, the current sample's characteristics actually make the study's overall findings even more interesting. While the above-mentioned German focus of the sample might partly explain the negative stance of women towards female journalists, the overall sample consisted of comparatively *young* participants with a *higher* education and a more *left-wing* political attitude: Accordingly, these people might be expected to be rather less biased toward female journalists. However, the results point in the opposite direction. This, in turn, sheds light on the ambiguity of previous research results, as the bias against female journalists is confirmed despite the young, higher-educated, left-leaning sample.

Contrary to an earlier study by Gross et al. (1980), the present study did not confirm that older participants evaluated articles written by women as less credible. Since very little research has focused on the moderation effect of age, the findings of this study could serve as a starting point for future research focusing on this aspect. In exploratory analyses, we revealed a remarkable pattern in which the age of participants *did* matter, but only for the male readers. Although male participants, overall, did not evaluate women's articles to be less credible—in contrast to female participants who rated articles of female journalist as less credibly—a visible difference was observed between older and younger male participants. Younger male participants rated the female journalist's articles less credible than the male journalist's articles, whereas this relationship was reversed for older male participants. Although speculative, there are some recent studies to explain this remarkable finding.

A large amount of young men still holds views that it is most desirable that they (i.e., the men) are working full-time while their wife stays at home (Brittany Dernberger & Joanna Pepin 2020). Moreover, young men seem to have developed stricter views on traditional gender roles compared to young women (Giulia M. Dotti Sani & Mario Quaranta 2017). Other research suggests that traditional and often sexist gender roles seem to be normalized, especially in magazines with young men as their target audience (Miranda A. H. Horvath, et al. 2011), which along with playing video games seems to contribute to an increased adherence to a masculine ideology (Soraya, L. Giaccardi, et al. 2016).

Although some younger men identify themselves as feminists and allies in the post #MeToo era (Rachael Goodwin and Preeti Srinivasan 2020), other younger men have developed stronger negative views on feminism due to frequent confrontation with the topic on the Internet. An example is the rising manosphere that can be found on websites such as *Reddit*, which is used predominantly by young males (Tracie Farrell, et al. 2019). Older men, in contrast, might not (or less) be confronted with this kind of content. Combined with some characteristics of the sample, where most older male participants indicated a rather left-wing political ideology, they may be more open to liberal ideas, such as gender equality. Future research is needed to verify the robustness of this interaction between gender and age.

It is important to mention that the study only exposed participants to news articles with a clear gendered topic: No control condition with a neutral topic was used that could serve as a baseline to compare the other conditions with. Such a control condition could have given additional insights; for example, whether the bias against female authors would be stronger or weaker (or the same) for a non-gendered topic as for the technology topic. Another point to discuss is the binary-focused set-up of the study. Given the clear distinction in our stimuli between a traditionally masculine looking male journalist and a traditionally feminine looking female journalist, it has to be acknowledged that this portrayal adheres to a traditional binary thinking. It would be interesting for future research to include a non-binary approach in which the journalist's gender is presented less obvious (i.e., stereotypical).

In conclusion, the gender of a journalist can influence the perceived credibility of a news article: While the article written by a female journalist was assessed as less credible overall, this gender bias was especially strong among a female audience when reading about technology (i.e., gender incongruent topic) as well as among younger men. The study's findings are pressing considering its societal relevance. Given that stereotypes against women and clearly pinpointed female gender roles in journalism are alive and well, the need for change is obvious. To change the audience's perceptions of female journalists, the first step is to increase their presence in the media; not only by balancing the gender ratio in journalism, but also by visibly increasing women's voices in typically male areas of reporting. This might not only help to combat gender biases in the journalistic field, but also to loosen the existing gender roles in society overall, given the continued impact of the media on today's society. That being said, it is duly hoped that if this study is replicated a decade from now, the findings will have changed for the better.

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