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# Media Priming and Gendered Career Outcomes for Women

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## Abstract

Media sources perpetuate the assumption that women in the workforce are absent in male-dominated fields such as science, technology, engineering, and math (STEM). The current study sought to establish the extent to which these messages impact women's decisions to pursue male-dominated careers. Researchers expected that exposure to a positive priming article would result in an increase in positive scores on a repeat measure survey, while exposure to a negative priming article would result in a decrease in scores, indicating changes in confidence and perceptions concerning women in male-dominated fields. Seventeen students of higher education were recruited from general education classes most likely to contain freshman, as this population was believed to be the most susceptible to priming. Though not statistically significant, preliminary data found trends indicating higher rates of change for the positive priming condition than the negative priming condition, with overall mean scores for the group increasing after exposure to the positive priming article. Data analysis also showed an inverse trend in male responses in this group, showing that, as women's scores overall increased, the men's scores overall decreased. Low participant turnout resulted in only modest effects when nonparametric statistics were applied; however, the trends that were evident suggest that a more robust effect could be seen should the study be replicated with more participants. Preliminary data collected suggests further pursuit of this area of study could improve the confidence of women in relation to male-dominated fields and therebybolstering their occupancy.


Keywords: media; priming; male-dominated fields; Science, Technology, and Math

For decades, women have been consistently reported in lower numbers for male-dominated fields. Various scholars and advocates have claimed that factors such as implicit biases or socially-derived coercion steer women into certain educational or career paths typically seen as more gender appropriate (Sommers, 2016; Horwitz, 2017). This social coercion occurs on a number of fronts, such asparental messages and expectations, peer pressure, cultural or religious values, varying levels of support from teaching staff, and mass media. The use of media in health-related campaigns has been well documented, with social disapproval suggested as playing a major role in deterring individuals from risky social behaviours such as fatty food consumption and subsequent health-related issues (Renaud, Bouchard, Caron-Bouchard, Dube, et al., 2006). While the other drivers of social coercion may vary, messages in the media remain constant. In a society in which access to media is omnipresent, this seems to be of particular concern.

Media actually serves as a constant source of coercion, informing individuals of norms and influencing expected outcomes. In interracial job interviews, for example, black job applicants receive impartial treatment in the form of shorter interviews and greater physical distancing because of the biased expectations the interviewer has about the applicant's likely success. This effect is more pronounced when biases or preconceived perceptions are activated just before the interaction occurs. They are then more likely to use the primed information to help them navigate the interaction (Herr, 1986).

Priming is said to exist on two levels: conscious intentional processing and subconscious automatic processing. These subconscious primes implicitly make connections between novel situations and preexisting internal schemas, freeing up cognitive resources. These implicit associations can be subconsciously activated when related stimuli are presented (Welsh & Ordonez, 2014). This suggests that the socially ingrained beliefs about women in male-dominated fields are easily brought to the conscious mind of women every time they consume information that reinforces this belief. This in turn determines how women act in response to situations in which these biases are particularly pertinent, such as in a job interview for nontraditional positions.

Media may also affect the confidence women have in their ability to succeed in the workforce, influencing their everyday behavior. In addition to the well-known wage gap, there is also a supposed confidence gap threatening women's success in the workplace. It has been suggested that the reason women are still less successful despite massive gains in the workplace is because women lack the confidence to seek promotions and prestigious project opportunities or to speak up in important meetings in which their input could be invaluable. Given the general habit of confusing confidence with competence, women are often overlooked in favor of louder, more self-assured male coworkers. They are more likely to feel like imposters and attribute success to external factors such as luck rather than internal factors such as intelligence. In fact, studies have found that, while men are likely to apply for or compete for a promotion even if they do not think they are 100-percent qualified, women are more likely to apply only when they feel they are perfectly matched despite overqualifications. This results in underqualified and generally less competent men advancing in their place. Not only does this affect promotion opportunities, but this lack of confidence also often results in women self-selecting less competitive careers like marketing rather than the more prestigious careers such as investment banking (Kay & Shipman, 2014).

This constancy of media may affect more than just the confidence of women considering more prestigious, male-dominated fields. According to a report from the U.S. Department of Commerce, women earn 33% more working in science, technology, engineering, and math (STEM), but despite the smaller wage gap, women hold less than 25% of positions in these fields. Black women in particular are grossly underrepresented, with black women comprising only 9% of all STEM workers in 2016 (Patten, 2016). The supposed reasons for this sustained underrepresentation are the same as those noted in other areas: differing choices of men and women in response to availability of flexible hours, accommodation for motherhood, lack of female role models, and increased prejudicial treatment regarding women in minority groups (DeVaney & Hughey, 2000). Stronger gender stereotypes reinforced by the media in these fields are also a major hurdle for women in STEM, often resulting in potential candidates being discouraged from STEM education and careers (Beede, Julian, Langdon, McKittrick, Khan, & Doms, 2011). For black women, this absence is despite the fact that they express similar interests in the field as well as higher aspirations in their youth than their male counterparts, in addition to performing better academically (Riegle-Crumb, Moore, & Ramos-Wada, 2011; DeVaney & Hughey, 2000).

STEM is not the only area that is lacking in female representation. Women make up only 13% of po-

lice forces despite progressive legislation designed to encourage equality (Crooke, 2013) and make up only 20% of congress and 5% of Fortune 500 CEOs (Geiger & Parker, 2018). Women learn through media that entry into these kinds of male-dominated occupations inevitably leads to hostility, social ostracism, discrimination, increased sexual harassment, and any number of other negative implications. This perceived inevitability leads to a feeling of learned helplessness among women, wherein they believe their inability to succeed is beyond their control, resulting in a reluctance to pursue these positions (McKean, 1994). Furthermore, isolation resulting from being the minority in a male-dominated field has been shown to lead to higher standards for success, lower psychological support, and increased stigmas that result in lowered confidence and lower overall performance (Galliano, 2003). A study published by the Journal of Vocational Behavior found that for both men and women, job satisfaction is derived from the ability to pursue a career that aligns with an individual's personal interests and skills regardless of whether that career is considered traditionally male or female (Lee, Lawson, & McHale, 2015).

Increasing the number of women in male-dominated fields may also result in a lessening of the stereotypes that deter women in the first place. Stereotypes serve a number of purposes, including providing a framework for individuals to navigate their social worlds by interpreting the behaviors of others. The usefulness of these stereotypes makes them particularly resilient in the face of contradictory information, but this does not mean they are impenetrable. The usefulness of these stereotypes is tied to their accuracy, so they should be receptive to evidence that renders them worthless. This is thought to be particularly evident in cases in which the ego of the individual experiencing cognitive dissonance in the face of information disconfirming their bias is not threatened (Sherman, Allen, & Sacchi, 2012).

Countering harmful stereotypes may be particularly difficult, however, in the case of female empowerment, because individuals are more likely to cling to stereotypic or prejudicial beliefs if they maintain a favorable power imbalance, but it is not impossible (Sherman, Allen, & Sacchi, 2012). According to the contact hypothesis, the more contact an individual has with people who disconfirm a stereotype, the more likely that stereotype is to change. Although this hypothesis has had conflicting results, it has been suggested that stereotype change is more likely to occur if the disconfirming evidence is attributed to an entire generalizable group rather than a specific individual whose discrepancy can more easily be explained away or categorized as a part of a subgroup (Sherman, Allen, & Sacchi, 2012). This would suggest that the reason stereotypes have not yet changed in response to the few pioneering women in male-dominated fields is because their success is likely being attributed to atypical behavior with these women belonging to a subset and not representational of all women. This would further suggest that the more women are able to succeed in these areas, the more their behavior will be attributed to typical group success, and the more the firmly-held stereotypes will change. Even if this contact does not result in immediate stereotype change, disconfirming information may result in an increase in perceived variability within the stereotyped group. This means individuals are more likely to accept that individual differences may exist within a stereotyped group. It may also result in a looser reliance on the stereotype and a heavier reliance on characteristics of newly identified subgroups which allow for more accuracy. This would therefore reduce the extent to which a stereotype has the power to impact a group (Sherman, Allen, & Sacchi, 2012).

This study hopes to establish the extent to which media impacts women's decisions to pursue male-dominated careers so that their numbers can be increased and the benefits of their participation reaped. Researchers expect that the more negatively women in male-dominated fields are presented and the more obstacles they are portrayed as having to overcome, the less likely women will be to pursue nontraditional roles. Conversely, if women's success is portrayed as something firmly within their control, they will be less likely to be deterred from applying and will report more confidence in their ability to succeed. This study seeks to show how women's exposure to varying messages about women in the workplace influences their behavior.

## Methods

### Participants

After gaining approval from the institutional review board, instructors were contacted for student recruitment. Students were asked to participate in a "career readiness interview" as an extra credit opportunity. Alternative extra credit opportunities were also offered to students who did not wish to participate so that this extra credit would not unduly influence students. Recruiting from general education classes ensured that the majority of the participants would likely not have clearly defined career goals, and so would be more susceptible to priming. Seventeen college students were recruited: 6 male

and 11 female. Their ages ranged from 18 to 44, with a mean age of 22. Academic class standings were 41% freshman, 12% sophomore, 29% junior, and 18% senior. Participants were ethnically diverse and from a variety of academic backgrounds.

## Materials and Procedure

A modified version of the research purposes was given to students upon arrival to maintain a reasonable degree of deceit. This ensured each student's answers would not be affected by the true purposes of the study. A copy of the script, informed consent documentation, and debriefing scripts used by researchers are available upon request. Participants then took an initial survey to gauge preexisting biases or willingness for entering male-dominated fields using a 5-point Likert scale. They were then asked to read one of three articles: The first positive priming article offered alternative explanations for the wage gap (adapted from "Wage Gap Myth Exposed — By Feminists," by Christina Hoff Sommers); the second constituted a negative prime by outlining the various issues women face in male-dominated careers (adapted from "Gender segregation at work: "separate but equal" or "inefficient and unfair," by Will McGrew); and the third served as a control or neutral prime by offering general interview advice (adapted from "Five ways to improve your interview technique," by Michael Moran).

The participants then participated in a job interview for either a preschool teacher (a stereotypically female-dominated field) or a physics teacher (a stereotypically male-dominated field). All participants were interviewed by an associate student researcher to standardize the experience for each position. The questions asked by the interviewer were standardized as well, and only neutral feedback was given. A copy of the interview questions are available upon request. The participants were then given a repeat measures survey to determine changes in perceptions and willingness to apply for male-dominated careers and debriefed on the true purposes of their participation.

## Results

Researchers expected to find that negative media messages would have a negative effect on women's confidence in entering male-dominated fields. Additionally, positive messages were expected to have a positive effect. The data collected was transformed to reflect overall change from pre- and post-prime surveys for each priming condition, as well as gender differences found within each group. Data was analyzed using a Wilcoxon Signed-Rank Test, due to low participation rates. While not statistically significant, the between-group analysis data did reveal an interesting trend (Table 1), showing that the group displaying the greatest change from pre- to post-survey was the positive prime group, with the negative prime group showing little to no change.

Table 1

|  | Control | Prime (-) | Prime (+) |
|---|---|---|---|
| Control Group | 1.000 |  |  |
| Prime Group (-) | .496 | 1.000 |  |
| Prime Group (+) | .465 | .334 | 1.000 |

*Overall Change in Pre- and Post-Survey Responses*

While not statistically significant, the male and female participants' responses were separated and compared in Table 2. Though the women's pre/post scores showed an increase in change in the positive prime group, the men's scores showed an inverse trend, with overall scores decreasing. This suggests that the increased trend seen in overall scores within this positive prime group would have been further increased were it not for the men's decrease in scores.

Table 2

|  | Neg. Prime-Females | Neg. Prime-Males | Pos. Prime-Females | Pos. Prime-Males | Control |
|---|---|---|---|---|---|
| Neg. Prime-Female | 1.000 |  |  |  |  |
| Neg. Prime-Males | .655 | 1.000 |  |  |  |
| Pos. Prime-Females | .414 | .317 | 1.000 |  |  |
| Pos. Prime-Males | .593 | .655 | .285 | 1.000 |  |
| Control | .785 | .655 | .317 | .655 | 1.000 |

*Gendered Differences in Change in Pre and Post Survey Responses*

## Discussion

The data collected showed a stronger response in the positive prime condition than the negative prime condition. While the study expected to find that negative messages would negatively impact self-reported confidence on the post survey, no significant change took place. As anticipated, a positive change was observed in the positive prime condition (Table 1).

These responses can be explained first with the denial hypothesis proposed by Foster (2000), which states that when faced with personal discrimination, women will likely minimize this discrimination as a means to avoid associating themselves as victims, thereby avoiding anxiety. Should this hypothesis extend to exposure to messages of others' discrimination as it directly affects them, the negative article might not have had the expected effect because the female participants were discounting their relevance to minimize the effects of identifying themselves as victims of a system that does not always support their success.

Additionally, a study by Peterson, Stahlberg, and Dauenheimer (2000) on the self-enhancement theory found that individuals react more positively to positive feedback and tend to prefer it as a result. The study found that participants were likely to rate self-consistent feedback as being more valid. In this context, it can be understood that participants in the current study were likely to react more positively to the positive priming article because it served to enhance the participants' self-esteem and discount the negative priming article because it offered no protective or enhancing value, as it did not align with their self-concept. Participants discounted the messages in the negative priming article to protect their self-esteem and avoid feelings of victimization.

Should the trends found in the preliminary data hold given additional participant data, this could suggest a legitimate avenue for change concerning women's confidence going into male-dominated fields. Reducing negative messages in the media does not seem to be a means for bolstering women's confidence. Rather, increasing the positive messages surrounding women's abilities and success in male-dominated fields would have a positive impact on young women and their career outcomes. Great strides have already been made in this arena as, in 2018, the film industry saw an uptick of 8%

from 2017 in the top 100 movies that featured a woman in a leading or co-leading role. This was a 20% increase from 2007 (Women and Hollywood, 2018). Representation of women in politics has also seen an increase in the past election season, with Time Magazine reporting record-breaking numbers of women elected to the U.S. House of Representatives and women of diverse minority backgrounds achieving many firsts, all of which has receiveda great deal of media exposure (Cooney, 2018).

However, there does still seem to be a long way to go, with females representing only 26% of all characters in leadership positions onscreen, and only 30% of female characters expressing work-related goals. More than half of all female characters instead express goals centered around their personal lives (Women and Hollywood, 2018). Depictions of women in movies and television, novels, and the news spread throughout daily life, and each new depiction only serves to reinforce the messages they relay. Considering that onscreen media is arguably the most highly consumed form of media, increasing the circulation of women's success in male-dominated fields and portraying women as strong, career-oriented characters onscreen would surely go a long way toward encouraging young women to pursue these roles themselves.

Often, messages in the media are presented to the audience in such a way that the message being expressed, either intentionally or unintentionally, is done so below a cognitive threshold, also known as subliminal priming (Elgendi, et al, 2018). Women in submissive roles are presented so organically in media that its message that women belong there often goes undetected. Additionally, repeated exposure to this subliminal information results in incremental encoding that can lead to long-term storage of these messages. This encoding occurs even when the individual is ignorant of the existence and purpose of the subliminal messages and can affect decision-making long after. In fact, the study performed by Ruch, Zust, & Henke (2016) found that delayed decision-making can be influenced by only a few exposures to subliminal information. This suggests that media messages are capable of affecting how women interact with their environments by subliminally priming them to make decisions based on information they do not know they are assimilating, information that can continue to impact their decisions long into the future.

By the time women enter postsecondary education and begin making career decisions, they have already been subliminally primed by messages in the media, po-

tentially contributing to a more solidified belief system resistant to the effects of media being studied and thereby influencing the results. More profound results could be found in studies on younger participants who have experienced less exposure to subliminal information. It may also be beneficial to study the results of more long-term priming; a single exposure to positive and negative messages is likely not enough to result in enduring encoding capable of affecting decision-making, and real-life exposure to these messages is likewise rarely limited to a single priming event. In fact, the results of this continuous early priming can be inferred from additional qualitative data collected from participants. Participants were asked to answer a number of questions during the presurvey about their age, class standing, major, and career aspirations. Of the 11 women who participated in the study, only two expressed interest in a male dominated field. Targeting a younger population could not only produce more significant results in terms of the current study, it could also suggest that, should a significant relationship be found between media priming and gendered career outcomes, adjusting the type of media young people consume could have a significant impact on the confidence of women going into male-dominated fields more so than targeting college-aged women.

As stated, it was expected that positive messages in the media would have a positive effect on women's confidence, and while the data did show a trend indicating that this effect may exist (Table 1), it bears mentioning that while the results found from statistical analysis were not statistically significant, the gendered data suggests that the overall scores were held down by the male responses in this group. While their pre-prime scores were similar to those of their female counterparts, the males' post-prime scores indicated a higher rate of negative scoring in response to positive messages regarding women's success in male-dominated fields. This phenomenon may be explained through the Evolutionary Neuroandrogenic (ENA) theory, which suggests that males have developed more competitive behaviours, typically related to status-striving, as higher status in males has historically been of value to females seeking mates. While some of these behaviours lead to criminal activities, others are accepted and even encouraged in society. It has been suggested that this competitive and sometimes victimizing behavior—predominately displayed by men and theorized to be linked to the Y-chromosome and testosterone release—leads to higher rates of antisocial behaviour. More subtle and sophisticated forms of this victimization may include those that deprive others of resources (Ellis & Tittle, 2004). This resource hoarding has been observed in nonhuman animal models of male behaviour as well, finding support that males choose to put themselves in advantaged positions even to the detriment of others (Christov-Moore, et al, 2014).

In fact, men seem to seek the advantage in any interaction with groups in which they may be in competition, even if this means the group they are competing against is disadvantaged. In response to Affirmative Action initiatives, many (predominately white) men have voiced concerns over what they feel is reverse discrimination. However, studies on higher education have found that abolishing Affirmative Action as it relates to institutions of higher education would only increase white admissions by 1.5%, while black enrollment would likely decrease by more than half (Fenelon & Brod, 2000). Any slight change in power dynamics seems to have a large impact on the behaviours of those in higher status positions predominately occupied by white men.

Men's competitive nature is most often referenced in terms of competition against other men. However, male behaviour when forced to compete against women is of more interest, as it may help to explain the environment women face within these male-dominated fields. Studies concerning these interactions are few, but what has been found suggests that, when competing with women who are perceived to have equal standing, men display more aggressively competitive behaviours than they display when in competition with men alone. A study in Japan observed this effect in the behaviour of male speedboat racers competing in mixed-gender races where women have been competing as equals since the 1950s. These men were more likely to attempt to gain a better advantage over their competitors using strategies that were more aggressive than when in competitions with other men, despite the risk of severe penalties that could result from such behaviours (Booth & Yamamura, 2016).

When faced with messages that suggest equality of opportunity, males may prefer to maintain a perceived advantage by choosing to associate women as disadvantaged in much the same way that women discounted messages of discrimination to maintain their own self-schemas and avoid anxiety. Though their initial responses may have simply reflected societal norms

that drove them to answer in ways that they knew they were expected to—that is, to state that women are just as capable as men—when they were faced with messages that threatened their advantaged position, these men were then required to consider how this information impacted their status within society, resulting in a response which drove them to perceive themselves in a more advantaged position. When the positive prime article was presented, it suggested to the male participants that women were on equal ground when competing for status. According to the ENA theory, this perceived threat to their status may have triggered evolutionary drives linked to status-striving in these men, resulting in this aversion to any means of leveling the playing field and removing their advantage. Reframing women as being more disadvantaged helps them to maintain a power imbalance that is in line with status striving.

Low participant turnout resulted in only modest effects when nonparametric statistics were applied; however, the trends that were evident suggest that a more robust effect could be seen should the study be replicated with more participants. Should the trend hold given higher numbers, this contradictory finding could suggest that the increase of women in STEM and other male-dominated fields could require more than increasing women's confidence. It may also require additional research to determine the extent to which male perceptions and behaviour in the workforce are affecting women's success. It is pertinent to study this tendency for men to act more aggressively in competition with women to reduce the hostility of the workplace once women are present. There seems to be little to no data concerning men's behaviour when competing with women. Considering men and women do frequently interact competitively in the workforce, this lack of scholarly data is surprising and suggests an area of intersex interactions and how they impact women in the workforce that requires more attention. It brings to light a substantial gap in scholarly knowledge that needs to be addressed if researchers are truly to understand the variables that affect women in the workforce. Though the current study suffered various limitations, the preliminary data found does suggest a trend that requires additional research. Further pursuing this line of study could help to understand the depth of media impact on the impressionable minds of young girls as they develop their sense of self and how this might affect their future career aspirations. Further pursuit could also help understand how men and women interact in the workforce, and how male behaviour may result in the departure of women from male-dominated fields. The role media plays on the confidence of women in relation to male-dominated fields is an area of gender study that could serve to bolster women's occupancy and lessen the pay gap they experience. Preliminary data collected in this study shows promise in this area and should be used as foundation for further research.

## References

AAUW. (2012). Graduating to a pay gap: The earnings of women and men one year after college graduation. American Association of University Women; Washington, DC. Retrieved from: https://nwlc.org/resources/the-wage-gap-the-who-how-why-and-what-todo/

Beede, D., Julian, T., Langdon, D., McKittrick, G., Khan, B., & Doms, M. (2011). *Women in STEM: A gender gap to innovation (executive summary).* U.S. Department of Commerce. Retrieved from: http://www.esa.doc.gov/sites/default/files/womeninstemagaptoinnovation8311.pdf

Booth, A.L. & Yamamura, E. (2016). Performance in mixed-sex and single-sex tournaments: What we can learn from speedboat races in Japan. *IZA Discussion Paper No. 10384.* Retrieved from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2879791

Christov-Moore, L., Simpson, E. A., Coudé, G., Grigaityte, K., Iacoboni, M., & Ferrari, P. F. (2014). Empathy: gender effects in brain and behavior. *Neuroscience and biobehavioral reviews*, *46 Pt 4*(Pt 4), 604 -627. doi:10.1016/j.neubiorev.2014.09.001

Cooney, S. (2018). 2018 midterm elections lead to historic wins for women: Here are some of the women who made history in the midterm elections. *Time Magazine.* Retrieved from: http://time.com/5323592/2018-elections-women-history-records/

Crooke, C. (2013). *Women in Law Enforcement. 6*(7). Community Oriented Policing Services; U.S. Department of Justice. Retrieved from: https://cops.usdoj.gov/html/dispatch/07-2013/women_in_law_enforcement.asp

DeVaney, S.B. & Hughey, A.W. (2000). Career development of ethnic minority students. In D.A. Luzzo (Ed), *Career counseling of college students: An empirical guide to strategies that work.* (233-252). Washington, DC, American Psychological Association. doi:10.1037/10362-013

Elgendi, M., Kumar, P., Barbic, S., Newton, H., Abbott, D., & Cichocki, A. (2018). Subliminal priming-State of the art and future perspectives. *Behavioral Sciences, 8*(6). doi: http://0-dx.doi.org.library.acaweb.org/10.3390/bs8060054

Ellis, L. & Tittle, C.R. (2004). Sex, status, and criminality: A theoretical nexus*. *Social Biology, 51*(3), 166 -170. doi:10.1080/19485565.2004.9989091

Fenelon, J.V. & Brod, R.L. (2000). Ideologies of reverse discrimination: Race, gender, class, age analysis. *Race, Gender, & Class, 7*(2), 149.

Foster, M.D. (2000). Positive and negative responses to personal discrimination: Does coping make a difference. *Journal of Social Psychology. 140,* 93 -106.

Galliano, G. (2003). *Gender: Crossing Boundaries*. Belmont: Wadsworth.

Geiger, A. & Parker, K. (2018). *For women's history month, a look at gender gains- and gaps- in the U.S.* Pew Research Center Fact Tank. Retrieved from: http://www.pewresearch.org/fact-tank/2018/03/15/for-womens-history-month-a-look-at-gender-gains-and-gaps-in-the-u-s/

Herr, P. (1986). *Consequences of priming: Judgement and behavior. 51*(6), 1106-1115. Retrieved from: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.471.1642&rep=rep1&type=pdf

Hohman, R. (2016). *This is the biggest myth about the gender wage gap*. Retrieved from Fortune website: http://fortune.com/2016/04/12/myth-gender-wage-gap/

Horwitz, S. (2017). *Truth and myth on the gender pay gap*. Foundation for Economic Education. Retrieved from FEE's website: https://fee.org/articles/truth-and-myth-on-the-gender-pay-gap/#0

Kay, K. & Shipman, C. (2014). *The confidence gap.* Retrieved from The Atlantic website: https://www.theatlantic.com/magazine/archive/2014/05/the-confidence-gap/359815/

Lee, B., Lawson, K. M., & McHale, S. M. (2015). Longitudinal associations between gender-typed skills and interests and their links to occupational outcomes. *Journal of Vocational Behavior, 88*, 121–130. Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4383179/#!po=1.35135

McKean, K. J. (1994). *Using multiple risk factors to assess the behavioral, cognitive, and affective effects of learned helplessness. 128*(2), 177 -183. doi:10.1080/00223980.1994.9712721

Miller, C.C. (2016). *As women take over a male-dominated field, the pay drops*. Retrieved from the New York Times website: https://www.nytimes.com/2016/03/20/upshot/as-women-take-over-a-male-dominated-field-the-pay-drops.html

NWLC. (2017). The wage gap: The who, how, why, and what to do. National Women's Law Center. Washington, DC. Retrieved from: https://nwlc.org/resources/the-wage-gap-thewho-how-why-and-what-to-do/

Patten, E. (2016). *Racial, gender wage gaps persist in U.S. despite some progress.* Pew Research Center Fact Tank. Retrieved from: https://www.pewresearch.org/fact-tank/2016/07/01/racial-gender-wage-gaps-persist-in-u-s-despite-some-progress/

Peterson, L., Stahlberg, D. & Dauenheimer, D. (2000). Effects of self-schema elaboration on affective & cognitive reactions to self-relevant information. *Genetic, Social, and General Psychology Monographs, 126*(1), 25 -42.

Renaud, L., Bouchard, C., Caron-Bouchard, M., Dube, L., et al. (2006). A model of mechanisms underlying the influence of media on health behaviour norms. *Canadian Journal of Public Health. 97*(2), 149 -152. Retrieved from: https://0-search-proquest-com.library.acaweb.org/docview/231996934/81608F-1FA7EB40FEPQ/18?accountid=41894

Riegle-Crumb, C., Moore, C. & Ramos-Wada, A. (2011). Who wants to have a career in science or math? Exploring adolescents' future aspirations by gender and race/ethnicity. *Science Education*, *95*(3). 458-476. doi:10.1002/sce.20431

Ruch, S., Zust, M.A., & Henke, K. (2016). Subliminal messages exert long-term effects on decision-making. *Neuroscience of Consciousness, 2016*(1).

Sherman, J., Allen, T., & Sacchi, D. (2012). *Stereotype confirmation and disconfirmation.*

Sommers, C.H. (2016). *6 feminist myths that will not die*. Retrieved from Time Magazine website: http://time.com/3222543/wage-pay-gap-myth-feminism/

Welsh, D. & Ordonez, L. (2014). *Conscience without cognition: The effects of subconscious priming on ethical behavior. 57*(3), 723-742. Retrieved from: http://0-web.b.ebscohost.com.library.acaweb.org/ehost/pdfviewer/pdfviewer?vid=1&sid=4e6c6925-60b6-484d-8029-9d29aa9e9e12%40pdc-v-sessmgr01Footnotes

Women and Hollywood (2018). 2018 statistics. *Women and Hollywood.* Retrieved from: https://womenandhollywood.com/resources/statistics/2018-statistics/