

THE IMPACT OF STEREOTYPE THREAT AND LEADERSHIP SELF-EFFICACY ON WOMEN

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Abstract

Because of the inconsistency that exists between women and men in Science, Technology, Engineering, and Math careers and in the positions of leadership within those careers, this research studies the correlation that perceptions of stereotype threat and leadership self-efficacy have on the decisions of women about their advancement or continuance in their STEM careers. Moreover, this study examined to which extent women's advancement or continuance decisions could be affected by their leadership self-efficacy levels. Those findings were then used to make a comparison between the correlations for women in STEM and Gender-neutral careers. A sample size of 100 women was surveyed, under which 60 were from STEM careers and 40 from Gender-neutral careers. Result indicated that perceptions of stereotype threat were negatively correlated with both, advancement and continuance, of women in STEM careers. The same relationship was found for women in Gender-neutral careers. Furthermore, leadership self-efficacy moderated the relationship between perceptions of stereotype threat and both, advancement and continuance, for women in STEM and Gender-neutral careers. However, the correlations were more strongly supported for women in Gender-neutral careers. The results of this study yielded practical suggestions for organizations concerning the current gender inequality in STEM career, and positions of leadership within those careers.

Key Words: STEM careers, Stereotype threat, Leadership self-efficacy, Gender-neutral careers

1. Introduction

A lot of writers are continuously interested in the concepts of gender and leadership, presenting stark and significant differences between men and women (Book, 2000; Bowman, Worthy, and Greyser, 1965). These distinctions came from the perspective of women being lower in rank than men to the more modern perspective that exalts the advantage of women in leadership position (Book, 2000; Helgesen, 1990). Whereas women had made great marches for equality, they still have to achieve the final aim of complete gender equality in the labor force. Bearing in mind that women earn just a small portion of the corporate positions, they have a long way to go. Worldwide, women complete almost half of the medical degrees, which is 48%, yet women occupy only 34.4% of physicians and surgeons, and a mere 15.9% of dean positions at medical schools (Warner, 2014). These data show us the inconsistency between the degrees received by women, and the ratio at which they enter into leadership positions in their fields of knowledge. Women have witnessed some changes over the last 40 years. The participation of women in the workforce has increased and women started gaining leadership positions. Yet, the advancement of women into a company's top level positions has reached a plateau in the recent years (Warner, 2014).

There are careers where women are even more underrepresented compared to other careers. Such careers are defined as male-dominated careers because men have more access to them. In male-dominated professions women are largely underrepresented not only in the leadership positions, but

even at the entry level positions. This kind of career is in the direction of Science, Technology, Engineering, and Mathematics (STEM). Careers in STEM fields are male dominated, with women being largely underrepresented in STEM careers as a whole and even more underrepresented in STEM leadership positions (Beede, et al., 2011).

In Kurdistan Region of Iraq the situation can be said to be a bit better. In the big cities we see more and more women joining the workforce. In the last few years, many foreign companies established in Kurdistan Region and they were willing to employ women. Yet, the cultural aspects start playing a role here. Northouse (2013) defines culture as “The learned beliefs, values, rules, norms, symbols, and traditions that are common to a group of people”. Implied to all cultural studies’ viewpoints is that culture forms the values and attitudes that impact perceptions of individuals, comprising human phenomena like leadership (Gerstner and Day, 1997; Ayman, Mead, Bassari, and Huang, 2012; Liu, Ayman, and Ayman-Nolley, 2012). Yet, a significant part of the Kurdish households is not willing to send their daughters, sisters, and wives to school and/or work. They believe in the “traditional image” of women belonging to the kitchen. People tend to think that higher level positions belong to men rather than women. They believe that orders and commands should be coming from male leaders. The women are less powerful and effective as a leader in their eyes.

This paper attempts to shed some extra light on this issue by carefully looking at the perceptions women regarding stereotype threat in masculine work fields. To be more specific, this paper tries to examine how the perceptions of women regarding stereotype threat further causes a decline in the women’s intention to carry on in, and pursue leadership positions in STEM careers. It is suggested that leadership self-efficacy can consecutively moderate the impacts of women choosing not to continue in STEM careers at all, or just opt out the leadership positions in such careers.

2. Literature review

2.1 Stereotype threat

This phenomenon, which is called stereotype threat, entails the possibility of the behaviors of individuals matching a negative stereotype regarding the group they belong to that might cause underperformance (Steele and Aronson, 1995). The theory of stereotype threat assumes that if an individual is a member of a stigmatized group with culturally recognized negative stereotype, they may perform at a lower level in the stereotypes field. This is because the individual is distracted by the fear of strengthening and verifying the negative stereotype.

When an individual who is stereotyped is placed in circumstances in which he or she can corroborate the negative stereotypes towards his or her group, like testing the stereotype trait, that individual has an inclination to underperform. The impacts of stereotype threat are more obvious when the to be performed task is significant to the individual, or when they are encourage to perform the task well. Even if the task involves something that the individual usually likes doing, the stereotype threat will weaken that and cause the person to underperform (Steele et al., 1999).

2.2 Leadership self-efficacy

Self-efficacy is a term that originates from the Social Cognitive Theory of Bandura (1977). Self-efficacy can be simply defined as an individual’s belief in his/her own abilities to accomplish the goals and aims they have set (Zimmerman, 2000). Bandura (1997) is of the perspective that the coping behaviour of people, the total effort that they are ready to put to accomplish a goal, and their perseverance when they face difficulties and challenges, are determined by self-efficacy. Although, it

is essential to note that self-efficacy is not a determinant of an individual's general perspective of himself or herself, in fact, it is more job specific (Zimmerman, 2000).

Leadership self-efficacy is a person's belief in their aptitude to carry out the tasks and duties that are necessary for performing leadership positions in an effective manner (Ng, Nanyang and Chan, 2008). Considering self-efficacy as a powerful factor in the performance of individuals and how they think about themselves, it is significant to find out the correlation between leadership self-efficacy and a person's intention to continue his/her career and chase positions of leadership.

Previously, in the study conducted by Davies et al. (2005), we have seen that stereotype threat can affect the performance of women in a negative way, and this study concentrates on stereotype threat and the career advancements of women. For that reason it is significant to examine this connection between the relationship of stereotypes with performance, and the relationship of leadership self-efficacy with performance. Bearing in mind that stereotype threat might be obstructing women's insights of career progress within their place of work, a new questions arises. "Do women with high leadership self-efficacy minimize the effects of stereotype threat and thus pursue higher level leadership positions?" (Ng, Nanyang, and Chan, 2008).

3. Methodology

This current study used a quantitative research method. According to Saunders, Lewis, and Thornhill (2007) this type of research is concerned with statistical data and graphs, or simply said, numerical data. The quantitative data of this study were obtained using various questionnaires. These questionnaires contained closed-ended questions, which were answered using a five point Likert scale. Furthermore, this research has a descriptive purpose because it seeks to provide a clearer understanding of the underrepresentation of women in STEM careers, and a deeper understanding into the perceptions of these women. Moreover, this current study adapted a survey as a research strategy. Perception data was gathered using a survey. A survey enables researchers to collect and assess data on perceptions of the participants, which commonly are not directly visible.

For the purpose of this study the selected population were women, working in Kurdistan Region, with an age of 18 or above. These women could have a job in the public or public sector or have an independent business. Furthermore, the women were not necessarily required to be KRG residents. This study involved women from any country of origin, as long as they were employed in Kurdistan Region. A sample size of 100 women was selected to collect data from. The participants were chosen based on their knowledge of the English or Kurdish language. This is because the survey was only available in these two languages.

Various closed-ended self-administered questionnaires were utilized in this current study as its research instruments. These surveys were derived from previous studies on women leadership. The survey was comprised of five essential parts, which were perceptions of stereotype threat, leadership self-efficacy, perceptions of advancement opportunities, continuance, and demographic information. In order to measure women's perceptions of stereotype threat, this study utilized the Perceptions of Stereotype Threat Scale (PST) designed by Ployhart, Ziegert, and McFarland (2003). The second part of the survey was regarding the participant's leadership self-efficacy. In order to measure this, a modified version of the general self-efficacy theory of Bandura was used. In order to measure the women's intentions to advance, the Perceptions of Advancement Opportunities Scale (PAOS) was used. The fourth part of the survey was designed to evaluate women's continuance in their fields of work.

4. Findings

4.1 Reliability

Results from the reliability analysis revealed that there exists a good internal consistency for the Perceptions of Stereotype Threat Scale, $\alpha = 0.811$. There is a higher internal consistency for the Leadership Self-Efficacy Scale, $\alpha = 0.866$. Perceptions of Advancement Opportunities Scale and Continuance Scale is unacceptable, having a Cronbach's alpha of 0.434 and 0.484 respectively.

Scale	Cronbach's Alpha	N of Items
Perceptions of Stereotype Threat	.811	8
Leadership Self-Efficacy	.866	11
Perceptions of Advancement Opportunities	.434	5
Continuance	.484	5

4.2 Validity

In this study, factor analysis is utilized as a tool to assess whether the suggested items measure the construct they are belonging to. A Barlett's Test of Sphericity is conducted in order to test the null hypothesis on whether or not the correlation matrix is the same as the identity matrix. In the table below is shown that the items are highly significant, since Bartlett's Test of Sphericity is significant at $p \leq 0.05$. The null hypothesis is therefore rejected. In the same table the Kaiser-Meyer-Olkin Test is shown which is equal to 0.756. Values greater than 0.5 are accepted.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,756
Approx. Chi-Square	1345,791
Bartlett's Test of Sphericity df	406
Sig.	,000

4.3 Analysis for STEM careers

A correlation analysis was conducted in order to examine the correlation between perceptions of stereotype threat and advancement and continuance. The table shows that there exists a significant negative relationship between perceptions of stereotype threat and women's advancement in STEM careers, $r = -0.156$. Also the correlation between perceptions of stereotype threat and women's continuance in STEM careers has a significant negative relationship, $r = -0.270$.

Descriptives and Correlations of study variables – STEM

Variables	Mean	S.D.	1	2	3	4
Stereotype Threat	2.86	.73	1			
Self-Efficacy	3.75	.61	-.460**	1		
Advancement	3.59	.53	-.156*	.298*	1	
Continuance	3.34	.68	-.270*	.224	.308*	1

N = 60

**, Correlation is significant at the 0.01 level (2-tailed).

*, Correlation is significant at the 0.05 level (2-tailed).

To identify the effect of leadership self-efficacy on the two above mentioned relationships, a multiple regression analysis was conducted. The model summary table shows that the coefficient of determination, $R^2 = 0.264$. Meaning that advancement and stereotype threat are for 26% affected by leadership self-efficacy. The ANOVA table shows that the F and p value met the following criteria, $F > F(\alpha)$ and $p < 0.05$. The coefficients table shows that when leadership self-efficacy is present, stereotype threat will decrease, $\beta = -.356$, and advancement increase, $\beta = .271$.

Effect of Leadership self-efficacy on the correlation between perceptions of stereotype threat and Advancement - STEM

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.514 ^a	.264	.238	.53542

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5,855	2	2,927	10,211	,000 ^b
	Residual	16,340	57	,287		
	Total	22,195	59			

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,793	,596		6,369	,000
	Stereotype Threat	-,356	,097	-,423	-3,679	,001
	Advancement	,271	,134	,232	2,019	,048

Another regression analysis was run to examine the effect of leadership self-efficacy on the relationship between stereotype threat and women's continuance in STEM careers. The model summary table shows that the coefficient of determination, $R^2 = 0.222$. Meaning that continuance

and stereotype threat are for 22% affected by leadership self-efficacy. The ANOVA table shows that the F and p value met the following criteria, $F > F(\alpha)$ and $p < 0.05$. The coefficients table shows that when leadership self-efficacy is present, stereotype threat will decrease, $\beta = -.362$, and continuance increase, $\beta = .097$.

Effect of Leadership self-efficacy on the correlation between perceptions of stereotype threat and Continuance - STEM						
Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	,471 ^a	,222	,195	,55046		

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,923	2	2,462	8,124	,001 ^b
	Residual	17,272	57	,303		
	Total	22,195	59			

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,457	,532		8,376	,000
	Stereotype Threat	-,362	,102	-,430	-3,547	,001
	Advancement	,097	,110	,107	,884	,380

4.4 Analysis for Gender-neutral careers

The previous analysis was repeated for the 40 participants in Gender-neutral careers. The correlation analysis revealed that there exist a significant negative correlation between perceptions of stereotype threat and women's advancement, $r = -0.496$. This is bigger than the correlation between the two variables in STEM careers, $r = -0.496 > r = -0.156$. Also the negative correlation between perceptions of stereotype threat and women's continuance was bigger in Gender-neutral careers, $r = -0.512 > r = -0.270$. From the regression analysis is revealed that with the interaction of leadership self-efficacy, stereotype threat decreases, $\beta = -.427$, and advancement increases, $\beta = .280$. This is stronger that it was in the STEM careers. Furthermore, leadership self-efficacy's impact on perceptions of stereotype threat and continuance was also stronger in Gender-neutral careers. Meaning that with the interaction of leadership self-efficacy, stereotype threat decreases, $\beta = -.525$, and advancement increases by a very small amount, $\beta = .009$.

5. Conclusion

The results of the current research help to discover practical implications for businesses. The results that higher perceptions of stereotype threat levels of women working in STEM careers result in lower levels of leadership self-efficacy, can help organizations to understand the consequences of stereotyping. It also gives an explanation of the meaningful effect stereotyping has on the advancement and continuance of women in their careers. Recognizing the negative results for the women's perceptions of other women and themselves in regards to stereotyping can be useful in bringing awareness to why there should be invested in projects that encourage equality of men and women in the workplace. Based on these findings, practical implications in the work can consist of implementing training for diversity awareness. It can also include creating a diversity centered culture all through the organization that teaches employees the consequences of negative stereotyping. This could help organizations in reducing the negative consequences that come along with stereotyping.

The results that higher leadership self-efficacy levels for women in STEM is correlated with their advancement in the careers accentuate on the significance of organizations' encouraging efforts to give women in STEM careers leadership training and to motivate them to apply for the job they are qualified for. This is to increase the women's leadership self-efficacy when trying to get promoted. This relationship indicates the importance of concentrating on leadership self-efficacy when considering the still existing gender gap in STEM careers. The relationship between leadership self-efficacy and women's continuance in STEM careers has the same implications as the relationship between leadership self-efficacy and women's advancement. When organizations are really investing in the potential growth of their female employees and provide them with leadership training, they can increase the intentions of these women to continue working in their current work field.

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