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Achieving Gender Equality

As a young woman in high school passionate about scientific research, I hope to continue conducting research in college. During my junior year of high school, I participated in my state science fair winning internships and awards for my research, which focused primarily on the ability of different common household acid dilutions to denature the gluten protein in an effort to reduce cross contamination for those with celiac disease. Celiac disease is an autoimmune deficiency in which the affected individual cannot ingest gluten, a protein found in most grains such as wheat, barley and rye. As a celiac, I found my results, although inconclusive, to be extremely rewarding because I felt as if I was making a difference in the quest for a cure of the autoimmune disease. I yearned for the satisfaction of better results and continued to work in the lab with my chemistry teacher and mentor, Mr. Haralson. The personal triumph stayed with me so I competed in the science fair during my senior year of high school with a project on the minimum inhibitory concentration of alcohol in foaming instant hand sanitizers necessary to kill bacteria. My research earned me third place along with an invitation to intern at the National Institute of Health. I was also awarded the Central Intelligence Agency Outstanding Scientist Award that came with an offer to tour the CIA headquarters in Virginia.

As a result of my work in the sciences, I was given the opportunity to work in a biochemistry lab at Georgetown University. In this lab, all my peers were young men which made me question what it means to be a “woman in science—” a field traditionally dominated by

men. Marily DeWall declares that “gender discrimination is still an issue in this day and age” and it is preventing women from becoming successful in the sciences (DeWall 398). She asserts, “for women to enter science related professions . . . they must overcome many obstacles not encountered by their male counterparts” (DeWall 398). Despite being surrounded by male coworkers, my mentor, Mr. Haralson, encouraged me to stay focused on my dream of becoming a researcher on a quest for the cure of celiac disease.

The image of the typical and respected role of women in society as mothers, nurses, teachers, and librarians is often “romanticized, sentimentalized, and idealized” by men (Heffernan 142). The current stereotype of “feminine occupations” pervades society and creates obstacles for women trying to enter careers in the sciences (Williams 23). Men allow the “glass ceiling” in the sciences to thrive with their ignorant labels and harsh criticism of women who do not conform to the standard. Therefore, both men and women must work to destroy these invisible barriers. Women must change how men in the science field perpetuate the conventional perceptions while men must strive to be more open-minded toward women pursuing scientific careers. Together, men and women possess the power to eliminate the pervading concept of the glass ceiling and thus, discontinue the divisions between men and women. Women can work toward this goal of achieving gender equality through refusing to adhere to a woman’s traditional role and becoming role models to young women interested in science. Men can work to eradicate the injustices in the sciences by refusing to propagate the stereotypes of a woman’s conventional occupation and encouraging women to enter the sciences. In addition, both men and women must work with the institutions to end gender discrimination.

Women must continue to pursue their passions in order to negate society’s expectations of them and eradicate the injustices in the sciences. By not conforming to the traditional standard

for women, female scientists suggest that their values are worth protecting even if they do not parallel society's expectations of them. Scholar Ronald J. Burke asserts that women will "disprove the stereotype by [establishing their skills]" in the sciences (169). Women make progress by discontinuing the divisions when they demonstrate their talent for science. By working in a field traditionally dominated by men, women disprove the notion that they are "incapable of reaching the higher levels," but rather capable of surpassing the limits society has imposed on them by becoming successful in a different domain (Fredrick 32). When women prove themselves as skilled in the sciences—the sphere of a man—they work toward reforming knowledge and ultimately disestablishing the gender binary stereotypes. With courage and conviction, women challenge the conventions and the assumptions that society maintains about women in science. These assumptions allow the glass ceiling, which deters young women from entering the sciences and prevents women in the sciences from achieving their full potential, to thrive. Therefore, because men have built up the glass ceiling, women must work to break it through changing men's presumptions and thus, ultimately helping the scientific community progress to become more accepting of women.

However, without men being more open-minded to women entering the sciences, the work of women to break the glass ceiling will have limited progress. Men must refuse to believe the stereotype that women are "responsible for running the domestic sphere" because such assumptions create the invisible barriers in the sciences (Fredrick 115). "Until recently, science has been an exclusively male enterprise and it is resisting the incorporation of women" (Burke 33), but if males discourage the concept that women can only be "authority figures in the home," women feel confident to pursue the sciences (Fredrick 115). If men change their attitude toward women entering the sciences, women will feel confident to participate in the sciences and thus,

challenge convention and slowly break the glass ceiling. Researcher Sandra L. Hanson asserts that “young men who are more progressive on their attitudes about working mothers are more likely than other men” to become successful leaders in their careers as they are more accepting of innovative ideas (Hanson 137). When men are unbiased toward women, they prove that “everyone—men and women—must contribute to reforming knowledge” and thus, suggest that they are open to change (Schibeinger 15). Therefore, without men being open-minded toward women in the sciences, women will not achieve gender equality. Consequently, in addition to the work of women to stop gender divisions, it is paramount that men refuse to believe the stereotypes of the conventional role of women in order to break the ubiquitous glass ceiling.

By becoming role models for young girls interested in the sciences, women scientists help nurture the next generation of females willing to challenge the limits of society. Young women need independent and forward thinking women to serve as examples of the successes that result from perseverance and commitment. Even successful women in the sciences maintain contact with their “senior women colleagues [who] act as role models and serve as mentors to provide them access to networks” (Rosser 143). The story of a woman’s achievements can resonate with any young girl and therefore, motivate her to continue to pursue her passion, which is necessary to work to break the barriers in the sciences. According to the researcher Sandra L. Hanson, “role modeling, self-confidence building, and providing a sense of belonging” are essential to the success of females in the sciences (Hanson 49). Consequently, because female role models are essential to the success of women in science, female scientists must strive to be mentors who encourage young girls to chase their dreams of being successful in the sciences despite it being referred to as a man’s field. By becoming role models for young girls interested

in the sciences, women work to empower them to question the archetypal role of a woman and thus, work to stop the divisions between men and women in the sciences.

In addition to women becoming role models for young girls interested in the sciences, men must encourage young women to enter the sciences in order for the scientific community to advance toward gender equality. “One of the main reasons that girls and women choose not to pursue science at all is a lack of self-confidence” due to a lack of encouragement from men in the sciences (Burke 31). Therefore, “women and girls must be . . . supported throughout their education” in order to have a positive attitude toward science (Burke 37). Without men persuading women to enter the sciences, it is unlikely that women will choose to pursue scientific careers even if they are passionate about science. Exposure to the concept that women should adhere to the socially prescribed gender norms especially impacts young girls as they begin to believe the stereotypes. When men support their female counterparts in their endeavors within the sciences, the scientific community can truly advance into a more integrated field of academia because the efforts of both men and women will break down the gender labels of the sciences that divide men from women.

Through working with the science institutions to end discrimination, men and women challenge the gender inequalities prevalent in the organizational hierarchy ranging from unfair differences in salary and grant money to inconsistencies in promotions and statuses. Sometimes, “women are excluded in subtle and often invisible ways” within science careers so they must confront the standard to work to end the separation between men and women resulting from the glass ceiling (Schiebinger 14). By questioning the sex divisions within science establishments, women help the scientific community move to become more unbiased. According to the scholar, Ronald J. Burke, institutions are “typically created by white men . . . and therefore the work

environment reflects their values and preferences. As a result, “[the] work environments [in science careers] are more supportive and hospitable to white men and may even be hostile to women” (75). Since men create this disdainful environment, women must work to change the fallacious assumptions men have of women and femininity.

Along with the responsibility of women working to find a solution to eradicate the invisible barriers in scientific institutions, men must be receptive to the achievements of women and work with the institutions to give successful women the recognition and salaries they deserve. Men’s stereotypical perceptions of women allow the organized science injustices to persist by emphasizing “ways in which men and women are fundamentally different” (Fredrick 26). Although men and women are different, they can have similar interests and passions and therefore, women should not be victims of gender discrimination in the field of the sciences. Accordingly, women, through continuing to question the norm in the establishments, can stop these inequities and divisions in the science world because men have allowed them to thrive. However, in addition to the work of women to stop the gender divisions in the sciences, men must work with women to fix the institutions’ perspectives and demand sweeping institutional change that will prevent the glass ceiling within science careers to persist. Therefore, men and women must work as a unified agent to generate gender equality within the science establishments.

Many believe that women, exclusively, have the ability to destroy the invisible barriers in the sciences by working to change how men in the science field perpetuate the conventional perceptions. In contrast to conclusions from other researchers such as Christine L. Williams, there is little support for the notion that only women possess the power to eliminate the pervading concept of the glass ceiling and thus, discontinue the divisions between men and

women. Christine L. Williams asserts that “many women encounter . . . invisible barriers to promotion in their careers, caused mainly by the sexist attitudes of men in the highest positions” so as a result, only women can work to break the glass ceiling since men allow it to persist (Williams 87). However, if only women work to end gender discrimination, there will be limited progress in breaking the glass ceiling without men being progressive and enthusiastic about the idea of female involvement in the sciences. Williams fails to address how men, too, must work to break the glass ceiling by reassessing their attitudes toward women in science. Williams also claims that women must have courage and conviction to break the ceiling, but she neglects to address how men also need these qualities to refuse to believe the stereotypical perceptions of women in science. Thus, we cannot conclude, as some have, that women, exclusively, possess the power to break the glass ceiling through working to change how men perpetuate the concept of a woman’s conventional role. We can conclude, however, that if men are more encouraging of women and if women continue to pursue the sciences, the invisible barriers of the sciences will eventually break due to the effort of both genders.

Since men have allowed the current stereotype of separate spheres for men and women to pervade society, the ever-present glass ceiling dominates the sciences. It may seem as if only women possess the power to eliminate these inequalities and invisible barriers in the sciences by working to change how men in the science field perpetuate the conventional perceptions. Yet, this is fallacious, as men, too, must work to be more accepting and tolerant of women in the sciences in order to break the glass ceiling. Men in conjunction with women can work toward this goal of discontinuing the divisions between men and women. Since men have established the divisions due to their ignorant judgments and traditional view on the role of a woman in society, they must encourage young girls to enter the sciences and be more accepting of women in the

sciences. Women can work toward the goal of discontinuing the divisions between men and women through refusing to adhere to a woman's traditional role, becoming role models for women interested in science, and working with the institutions to end gender discrimination and thus, break the glass ceiling.

It is important that the scientific community is aware of the lack of equality due to prejudices because it will allow leaders in science careers to prevent gender discrimination in their institutions. This progress is a slow process, but the effort to break the glass ceiling must come from both men and women. If men continue to be tolerant of women interested in science and women continue to pursue careers in the sciences, the scientific community will progress and begin to blaze new trails. In order to break the glass ceiling, men and women must be courageous and confident in their beliefs. Courage and conviction are admirable qualities in all men and women, not just those in the sciences, because it is inspiring when a person stands up for his or her beliefs despite outside influences or pressures as it empowers other young men and women to do the same. Furthermore, glass ceilings that prevent women from achieving their full potential are prevalent in other traditionally male fields such as business. Therefore, it is paramount that men and women are aware of the impact of their behavior so they can work together to break all glass ceilings and ultimately achieve true gender equality.

Audience Analysis

The essay written asserts that both men and women can work to break the glass ceiling of the sciences which men created with their ignorant judgments and harsh criticism of women who challenge convention and pursue careers traditionally dominated by men. Therefore, because men allow the glass ceiling to thrive by believing the stereotype of the traditional role of a woman, men, too, must work to be forward thinking and open-minded toward women who pursue careers in the sciences. It is directed at the professors of a science courses and college students majoring in the sciences. Also, students interested in careers in the sciences and more specifically women interested in entering a scientific field would be interested in learning about how men and women can break the glass ceiling that divides males from females. The students and teachers are of both genders and range in age from about seventeen to fifty.

The readers of this piece understand women are less represented than men in science careers and they are familiar with the concept of the glass ceiling—whether or not they agree with its existence. It is possible that the readers have preconceived notions on this topic due to personal experiences with gender equality and the sciences. Despite possible different personal experiences, all of the readers are college students or professors studying and teaching at The University of Maryland so they have a common understanding from the college experience. The readers may not be aware of the specific research before they read the essay, but the primary purpose of writing this paper is to inform the readers about how both men and women must work to break the glass ceiling of the sciences. Women do this by challenging convention and refusing to adhere to the traditional role of women that society rigidly imposes while men work toward this goal of eradicating the injustices in the sciences through encouraging women to enter the

sciences and refusing to believe the stereotypical perceptions of a woman's traditional role. In addition, both men and women must work with the institutions to end gender discrimination.