5-2023

Super STEM Women: Empowering Women to Seek Science, Technology, Engineering, and Mathematics (STEM) Fields

Camille Prendergast

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LS 400: Senior Capstone

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May 18, 2023

Abstract

The focus issue addressed in this Capstone Project is improving women in STEMs experience in higher education. This is important because improving women in STEMs experience will lead to more women in the male dominated STEM fields. An argument is made that it is important to provide more women in STEM fields for better representation in order to encourage young girls to pursue higher education in STEM. The primary stakeholder perspectives chosen were women who are currently majoring in STEM at a four year University because they have direct experience being in STEM classes. Three action options emerged from an analysis of the data and explored as ways to address the issue presented. Mandating educators and teachers assistants to complete gender and racial bias awareness training is argued to be the most effective way to achieve the goal of improving women in STEMs experience in higher education to increase the amount of women in STEM fields in the future.

Setting the Stage

Ever since I was a little girl I always loved going to school. I remember getting up super early for school, excited to go learn and be around my friends. I loved learning all subjects in school, but for as long as I can remember math has always been my favorite subject. I would get excited to learn math lessons because I always felt so confident in that subject. First grade Camille was so excited to learn about adding and subtracting numbers from each other in Ms. D-Bone's classroom! As I got older my confidence only continued to grow. Math was my best subject; for some reason it always came easy to me. But my peers around me were not the same. I remember they always used to say that their favorite subjects were either English or history. I never understood why they did not like math. I remember the first time someone said to me that girls were better at history and English than boys and boys were better than girls at math and

science. I was so confused because I always felt so confident in math, but hearing that boys were better than me in it, the thought of that did not make sense. I am glad that the thought of that did not discourage me from continuing to like math like it did to my peers. As I got older, however, the more and more I heard this stereotype. I also had more and more interactions with girls and women saying that they were not good at math or science.

As I got older fewer girls were in the math classes that I was taking. In high school in AP Calc there were probably twelve girls in my class, and eighteen boys. The classroom was male dominated. This never affected me until I got to college. I decided to major in Liberal Studies and minor in Mathematics because I love math, and wanted to keep learning about it. I remember my first upper division class. I was in for a rude awakening.

I was shocked at the demographic. There were a total of twenty-six people, and there were five women in the classroom. I was genuinely shocked, and very intimated. It was the first time in a math classroom where I did not feel confident to speak. I was afraid to get anything wrong or say wrong information. I was not comfortable going to class. Repeatedly I found myself getting really anxious before class, and feeling really discouraged about going to class. I had never had a bad experience working with other males in a classroom setting until coming to CSUMB. I never had an issue with males talking down to me or making me feel less than them in difficult math classes in high school. But, when I got to CSUMB I felt like I was being talked down to by my male peers. I felt as if they did not take me seriously when I spoke to them about math. One day in my MATH 322 class I was working with my table group. I was the only woman at the table. My group and I were working on a problem together, and I knew that I had done the problem right. But, my classmate was adamant that they had the correct answer, which was different from mine. He and I began to disagree over the problem. He would not let it go,

and I knew I was right so we began to argue. The argument became so bad that I had to ask the teacher to come and help our group. Normally I would never do this, but the fact he was talking to me the way that he was, I knew I needed some sort of authority to tell him that he was incorrect, and I was right. The teacher confirmed I was correct, and my classmate was beside himself. For some odd reason he could not accept that he was wrong and I was right. He was quiet for the rest of the class period. I had never argued with a classmate before like that about a math problem, but it really bothered me that he was speaking to me the way that he was. It was a bizarre interaction, for him to talk down to me the way that he did. It made me feel curious if other women in the same class had similar problems or experiences. I hoped no one ever had felt that way. I felt so belittled. I felt like I was viewed as an idiot. I felt terrible for the rest of the day for someone to think that they can talk to women that way, and feel like it is alright.

From that experience on I felt like I had to be silent in the remaining math classes that I had to take. I felt as if all my peers felt like I was a "stupid woman." I did not want to speak up, and say something incorrectly because I did not want to be judged. I also had a hard time asking my male professors for help because I had a hard time not feeling like they would judge me for being a "stupid woman" asking for clarification on problems. This interaction affected the rest of my time minoring in math. I cannot imagine if I majored in math, all of my classes would be altered and affected.

This experience made me realize that other women have probably experienced something similar to this interaction, if not something worse. It still makes me really upset and uncomfortable that women have to go through things like that just because of their gender. That is why I am doing my capstone project on women's experiences in STEM majors. I want to see if other women have gone through something similar, and to see what tools they have used to get

through these bad experiences. I want to learn more about what women need to improve their overall experience.

Literature Synthesis

The future of women in STEM fields continues to be at stake with the stigmas and stereotypes of young girls. A stereotype threat is a psychological threat when someone is doing something that is already a negative stereotype, and the person believes that they are a part of it (Aronson & Steele, 1995). Girls from a young age hear that they are not as good as boys in math and science. Therefore when girls struggle with math or science they begin to believe that they are a part of the negative stereotype and are discouraged from continuing to take higher classes in STEM subjects. It becomes a self-fulfilling proficiency, and the expectation that they are not good at STEM subjects becomes true, and as a result over time girls may turn away from math and science (Banaji, Greenwald, & Nosek, 2002). Therefore, women are more likely to give up on STEM subjects from a young age. When women do pursue STEM in higher education, studies have shown that women are more likely to drop out of college than men in STEM majors (Beasley & Fischer, 2012). With little to no representation of women in the STEM work field young girls are not able to identify with individuals, and cannot see that they can do it themselves. STEM fields typically are some of the highest paying jobs in the United States (Cheeseman-Day & Martinez, 2021). So, statistically speaking men are making more money than women since they are in higher paying fields. On top of the STEM fields being male-dominated, there is also the gender wage gap. So, with the gender stereotypes, gender wage gap, and little to no representation in the STEM field women continue to be discouraged away from STEM subjects in school. This is a massive problem.

What has been done?

Though men still dominate STEM fields, there are now many organizations in the United States where their main goal and focus is to support girls from a young age in STEM subjects, and encourage them to feel confident in their abilities in math and science. Some of them include "National Girls Collaborative Project," "American Association of University Women," and "Association for Women in Science." The most well known organization is called Women in STEM whose main goal is to build young girls' confidence in STEM subjects, and create internships and opportunities for them (Women in STEM, 2021). These organizations recognize that there is a gap and gender disparity in STEM majors, and try to help and support women to pursue STEM majors anyways. At CSUMB there is a club titled "Women in Computer Science" as well. The main goal of "Women in Computer Science," is to promote advocacy for inclusion and advancement of women in the Computer Science field. It is great to see that CSUMB has a program for women to empower other women. There are also scholarships for women that are majoring in STEM (Martin, 2021). Scholarships are very enticing for people because college is so expensive and people are looking for all of the financial aid that they can get.

Not only are there programs for encouraging young girls to enjoy STEM subjects, and scholarships for women who do pursue STEM in higher education, there have also been new training programs created for educators to bring awareness to their gender biases. These programs have been created to help uncover people's implicit biases about genders, and come to the realization of them. For example, Frontiers in Education (2020) created a training program with the main goal encouraging gender inclusion, and unlocking any unconscious biases that educators may have. This training also supports educators' ability to promote gender equality in schools. This allows the educator to reflect and do some introspection. This program also

includes concrete applications for the educators to use in everyday life to ensure that the educator is able to hold themselves accountable with any biases they may believe about certain races or genders. The most effective way for tools from implicit bias training to be used long-term, for any participant, is to have concrete direction and tools to be used in everyday life (Coffman & Gino, 2021). Therefore, Frontiers in Education's training may help break stigmas around young girls in STEM! All of these tools are great for continuing to break the stigma around women in STEM.

What should be done?

All in all little girls need to be supported better at a young age in math and science subjects and topics for them to feel more confident in them long term. There needs to be better representation in STEM fields as well. With more representation in these fields, young girls can see that they can do what women are already doing. Women should feel empowered to pursue any career that they want and can do. The stigma that girls are not as good as boys in science and math at a young age also needs to be destroyed for young girls to not hear this from a young age and feel discouraged to not try and do well in these subjects. More women in STEM fields in the future means better pay for women, and the gap of pay closes. Training about gender biases are crucial for future educators to take to learn more about themselves and any biases they may have that could be holding them back with students of their own. It should be a national policy for educators to do some sort of gender implicit biases, or unconscious biases in order for educators to understand their gender biases, for the future of teaching girls STEM subjects. An overall push for women in STEM needs to happen.

Method

For this Capstone Project, I investigated how women majoring in STEM view their experiences in male dominated classes, and what they thought could be done to improve them. Understanding how women can be better supported in male dominated fields may ensure a more positive experience for women in STEM and more women pursuing STEM in the future.

Context

The city that these interviewees currently reside in Karina, California. All of these participants are students at the university, Bal Rate Sonterey Tray. This university is a four year university that was established in 1994. This university is fairly new. The campus is made of 61% of females, and 39% males in 2023 (Institutional Assessment and Research, 2023). The majority of students are Latino

Participants and Participant Selection

Six women STEM majors,currently enrolled at the University of Bal Rate Sonterey Tray were invited to participate in this study. This group of participants were invited to participate because of their relevant experience in STEM classrooms on Bal Rate Sonterey Tray's campus, and their knowledge of the classroom environments.

Person A. A white female who is currently a third year student is twenty-one years old and identifies as caucasian.

Person B. A white female who is currently a third year student is twenty-one years old and identifies as caucasian.

Person C. A black female is currently a fourth year student who is twenty-one years old and identifies as Caribbean.

Person D. A Hispanic female who is currently a third year student is twenty years old.

Person E. An asian female who is twenty-two years old.

Person F. A white female.

Person G. A white female in her fourth year of undergraduate.

Researcher

I am a current student at the university Bal Rate Sonterey Tray studying Liberal Studies, and have a minor in mathematics. I hope to be a teacher one day. I identify as a white female from southern California. I have loved school ever since I could remember. I have always felt super confident in mathematics. However, all my life I would hear that boys are better at math and science and girls are better at English and history. I always felt very confused, but continued to love doing math. As I grew older, my girl friends around me stopped taking math classes, as I continued to take harder and harder ones. When I got to Bal Rate Sonterey Tray I decided to minor in math because I do love math. I had no expectations on what it would be like, but was shocked to learn that most of the upper division courses were male dominated. In those math classes oftentimes I felt like I was being talked down to, and treated as less than because I was a woman. I even got into an argument with a male classmate about an answer on a problem, and proved him wrong. This feeling inspired me to research my female classmates' experiences. I want to understand how they were able to deal with situations like that. I would like to understand what tools they used to continue to pursue their STEM major, and get through the difficult times. I am not a STEM major, so I am different from my participants in that way. So, I need to be mindful that these women in my research may have a different experience than I did in STEM classes when analyzing their answers and data.

Survey Questions

The questions that I asked each participant included:

1. What have been your experiences in STEM classes? What are some benefits and opportunities you experienced as a woman in STEM Classes? What about the difficulties or adversities you faced as a woman in STEM classes? What are some tools that helped you respond to these challenges? How would your experiences have been different if there were more women in your in STEMmajor classes?

2. What is currently being done to improve women's experiences in STEM classes and majors - by whom - and what do you think of these efforts? Why?

3. What do you think should be done about supporting women in STEM classrooms and majors? Is there something more that the university can do to support female STEM majors?

4. What do you think are the obstacles or barriers to improving women's experiences in STEM classes or as STEM majors?

5. Is there anything else that you would like to say about being a woman in STEM classes and/or being a STEM major? What about the improvement of women's experiences in STEM classes or a STEM major? How would you rate your experiences in STEM classes on a scale from 1 to 10?

Procedure

All of the participants were surveyed via a google form, and email. This google form

seemed to take each participant approximately ten minutes to answer. All of these answers and data received via the google form were anonymous. The process of getting each participant to fill out the questionnaire and emails took approximately a week.

Data Analysis

Transcribed surveys were coded and analyzed for emergent themes.

Results

For this Capstone Project, women who are majoring in STEM were interviewed to see what they think could be done to improve their experience in their STEM classes. This is important because if women feel better supported in their STEM classes, then women will stay in STEM for longer which will lead to more women in STEM in the future. Based on an analysis of the data and the relevant research literature three themes emerged. Evidence-based decision-making required evaluating each potential Action Option by the following criteria: the availability; the funding; and the reasonableness. The availability is an important criteria to take into consideration, because the more available it is the more people it will be able to reach. Funding and cost is crucial because some schools will be unable to afford it, based on their school funding. And reasonableness is also important to take into consideration because if it seems like a stretch to actually implement, it will probably not do much to change the issue. Based on the evaluation of each Action Option an action will be recommended and justified.

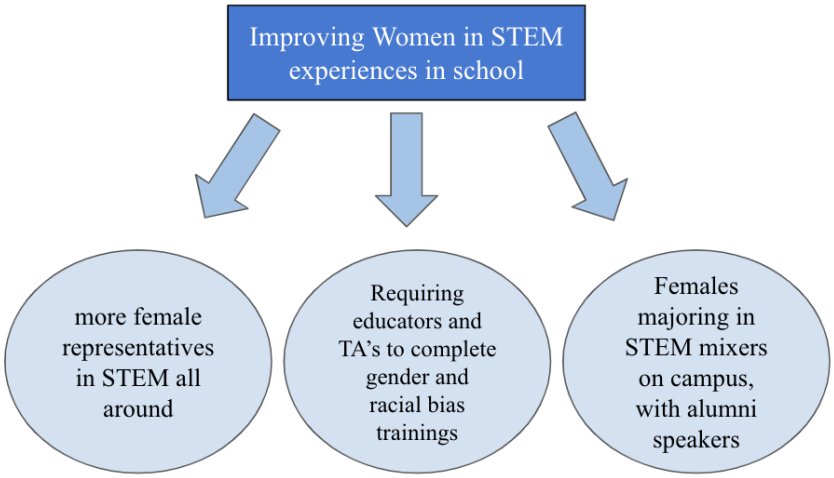


Table 1

Evaluation of Action Options

	Availability	Funding	Reach
Have more female representatives in STEM all around	Medium	Medium	High
Requiring educators and TAs to complete gender and racial bias awareness training for groups that are marginalized	Medium	High	High

Having female STEM major mixers on campus, with women who are STEM alumni speakers	Medium	High	Medium

More Representation of Females as Professors and in Authoritative Roles

The more representation women have in classes, the better supported women feel in male dominated settings. To have more female professors, and people of authority in higher education will give the female students a role model and figure to look up to. There have been many studies shown that representation is crucial for overall academic performance and self-confidence. A study done by Ammerman and Groysberg (2022) claims, “A robust body of research has found that seeing or hearing about female leaders improves women’s self-perception and performance, countering what is known as stereotype threat, or the risk of identifying with a negative stereotype of one’s group” (p. 1). Therefore the more female professors female STEM majors have the more likely their performance will be better. In the interviews conducted in this study, better female representation was listed from four out of the six stakeholders that would improve the overall experience in STEM classrooms and educational experience for women. For example from interviewee C, they claimed, “I think having representation among our professors, staff, counselors, students, and speakers is greatly influential, as everyone has a unique background that they can share. Being able to see our reflections, as well as seeing a diverse group of speakers is greatly influential,” (interviewee C, personal communication, April 11,

2023). So, having more representation with female authorities in STEM fields, and professors in STEM classes would enable women to feel more comfortable and better supported, enhancing their overall experience, keeping them in the field and classes for longer.

The availability of this action plan is pretty realistic. Availability is dependent on how many women are able to graduate with STEM degrees, and whether or not they are able to get hired in companies, universities, and different STEM fields. Funding is not a problem for more women in STEM fields, and positions. If men can be hired in these positions, there should be no reason why women cannot be in the same role and position as men with the same qualifications. And the reach of better female representation is high. The more women in STEM fields, and representation there is, the more young girls will see this. The reach is far. The overall action plan is however vague, therefore I am not sure whether or not the likelihood of it is high.

Requiring all TAs and Educators to Complete Implicit Bias Trainings

Another solution to improve and better support women in STEM classes would be to require educators and teacher assistants to complete training for marginalized groups in the classroom. Marginalized groups include women, people of color, LGBTQ+, lower-socioeconomic status, indigenous people, and etc. (Qualls, et al., 2022). Marginalized groups can be more prone to being at risk in the classroom, and can be at higher risk of trauma (Virginia Department of Education, n.d.). So, bringing more awareness to these risks is crucial for the educators and teacher assistants to understand, so they can support the marginalized groups in the best way possible. Without understanding how to best support a marginalized group, these groups will continue to face discrimination, and feel less than their peers. Speaking to interviewee D about their experience as a computer science major, one of their biggest

adversity as a woman in a STEM major was dealing with a really unhelpful teacher's assistant. Interviewee D claimed, "The small amount of times I grew the courage to ask for help whether from a professor, TA, or peer, if I would hear something that sounded the least bit degrading towards me, I would be off put and would not ask for help for sometimes the rest of the semester," (interviewee D, personal communication, April 4, 2023). With better trained teachers assistants, and educators, it could lead to less negative interactions with marginalized students. Marginalized students would also feel more comfortable and encouraged to ask for help when they need it. No student should feel as if they cannot ask for help from the people that are there to help them. That is counterproductive, and defeats the purpose of educators and teacher assistants.

I think that the availability for these trainings can be tricky. There are some online trainings that would make them the most accessible. As long as there is internet, and a tablet that an educator and teachers assistant can use, then these trainings are available. However, funding for these training would have to come from the schools or universities, which varies from school to school. Also, private schools do not have to make their educators take these training courses because they make their own rules. The reach can also be tricky, because it would depend on how many educators and teachers assistants would complete these training sessions.

Females Majoring in STEM Mixers

With limited numbers of women in STEM classes, women sometimes have a hard time connecting with their peers. One way to connect more women in STEM together would be to have on-campus events for women majoring in STEM to attend, and meet other women there. These mixers could join people together, and make it easier for women to make connections in similar situations to them. STEM majors are like no other, and having people going through the

same thing as you makes life easier, being able to bond and share your experiences that are similar. From the interviews conducted in this project, two out of the six stakeholders suggested mixers on campus or workshops where women come together, and female alumni share their experiences. There are clubs on campus, like “Women in STEM” at Santa Clara University, and Mendocino University, and “Women in Computer Science,” at California State University at Monterey Bay. But, to make it mandatory for women in STEM to have mixers across the United States would help join women together even more. Also having alumni women speakers who majored in STEM to come in and talk to these women would be beneficial to see what alumni did to graduate.

The availability for mixers and workshops for women majoring in STEM would really vary from school to school. Some universities could be too small, or there could be no one to step forward to take this responsibility to organize something like that. The funding for mixers could potentially be really expensive. Food, entertainment, and more could add up to be a lot, and some universities and schools do not have that in the budget. And the reach for female mixers could vary on how many women actually attended the event. If no one were to attend the event, then that would help no one. There would be no benefit out of having a mixer or workshop.

Recommendation

Out of all of the solutions for supporting women in STEM better, the option that I think that would be the most beneficial and effective for women in STEM would be to mandate gender and racial implicit bias training for educators and teachers assistants to complete before starting their jobs. In studies it has been proven that trainings with concrete directions and tips for people to use in their everyday life, they are able to use it long term (Coffman & Gino, 2021). With

these training and tips educators will be able to educate everyone the same, and understand how to be more sensitive and understanding to marginalized groups.

Concessions

Even though I think the most effective way to support women majoring in STEM is by requiring all educators to do implicit bias training, I still think that having more female representatives in STEM fields would be beneficial. To have more female representation would mean that women would feel better supported and more comfortable in classroom settings. I also think having female alumni speakers to come into the STEM classes, and talk about their experiences and how they got through it at STEM mixers would be beneficial as well. Having designated days where women are able to socialize and meet their peers going through similar experiences would be great to build relationships and a sense of community with women majoring in STEM on campus.

Limitations

I think that mandating implicit bias training is the most effective way for there to be a change for more women in STEM, there are some down sides to this idea. Training for educators can be expensive, and sometimes disregarded by the person taking the training. Educators and teacher assistants could be defiant to take these trainings because they already go through so much training, it just adds one more thing to the list. There are also not a ton of trainings that have been created specifically for gender biases. I am not also not sure how long these training sessions could be mandated for. People could argue that they are outdated because the gap is closing between the amount of women already majoring in STEM.

Potential negative outcomes.

Educators and teacher assistants could just skip through the mandated training and not pay any attention to the details. If they do not pay attention, they could get nothing out of the training, and still be unconsciously unaware of their implicit biases. Then this training would mean nothing. Teachers could also not accept their own implicit biases, and become in denial about it. If teachers were to reject the idea of their own implicit biases, and not accept the instructions and tools to use with groups they are implicitly biased towards, it would not make a difference to the marginalized students.

Conclusion

Despite the concessions, limitations, and negative outcomes, I still believe that these training sessions helping teachers discover the implicit biases about genders and different races and ethnicities would be the most beneficial for women in STEMs experiences. Teachers understanding how to better support marginalized groups will help lead to better learning environments for all students. Teacher assistants also understanding how to support students that are marginalized will also encourage students to feel more comfortable asking for help in the STEM courses. With this idea, women would be better supported in their classes, and the likelihood for dropouts would decrease. This means more women in STEM fields in the future, leveling out the amount of men and women in these fields. More women in STEM fields means more representation, which is also great for the up and coming generations.

Action Documentation and Critical Reflection

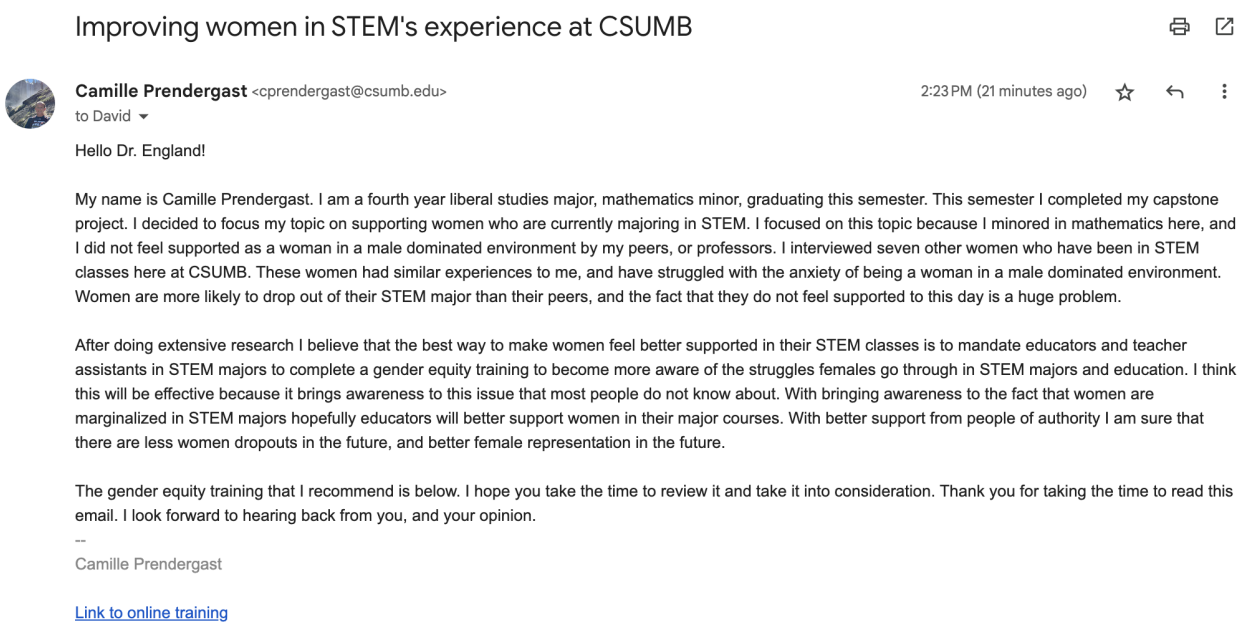
The focus of this capstone project was to find ways and tools for women who are majoring in STEM to feel better supported in their major classes. I wanted to do this because most STEM fields, if not all, are male dominated. Therefore most STEM classes are male

dominated. It can be intimidating being the only woman or one of few in male filled classroom. Having personal experience of being one of few women in a male dominated classroom, I wanted to see what other women did to persevere in this testosterone filled environment. So I interviewed seven women who are currently majoring in STEM at a four year university. I picked women who are majoring in mathematics, computer science, and environmental science. After interviewing these seven women through Google Forms I interpreted their answers and analyzed the information. With the data analyzed there were three emergent themes that highlighted these women's answers. With these themes in mind, action options that I thought would be effective emerged. The first action option that emerged from the data was to increase the female representation in STEM fields, and to have more female professionals on college campuses. That would include having more female professors, and female support on campus. The second action option that emerged from the data was to have female STEM mixers on college campuses to get together female STEM majors. There were also suggestions to have female STEM alumni speak at these mixers and give suggestions and support to the current women who are majoring in STEM. And the last action option that emerged from the data was to require there be some sort of gender equality and bias training for teacher assistants and professors to complete before teaching women in STEM courses.

The action option that I decided to implement into my action plan was to require educators and teacher assistants to complete gender bias training and understand the struggles women face in education. I decided to pick this option because I thought it would help women feel better supported in their STEM courses. I believe if women feel better supported in their major classes, and feel empowered to continue on with their difficult major, I think that they will be less likely to drop out of their STEM major. I think that less females would drop out of their

STEM majors as a result of educators and teacher assistants being more aware of the struggles females do go through as STEM majors, and the fact that women STEM majors are a marginalized group. As a result of more women completing their STEM degree there is a high chance that STEM fields will have more women in them, increasing the female representation in them.

Unfortunately as just an undergraduate student, I hold no power over educators on college campuses. Therefore I cannot require anyone to complete gender bias training. But, I did reach out to the dean of the university I attend, and highly advised them to make this training required for STEM educators and teacher assistants to complete. I also reached out to the academic advisors of the same majors I interviewed, and suggested the same thing. There are pictures of the email format that I used. I sent this to three other academic advisors as well.



Improving women in STEM's experience at CSUMB

Camille Prendergast <cprendergast@csumb.edu> 2:23 PM (21 minutes ago)
to David

Hello Dr. England!

My name is Camille Prendergast. I am a fourth year liberal studies major, mathematics minor, graduating this semester. This semester I completed my capstone project. I decided to focus my topic on supporting women who are currently majoring in STEM. I focused on this topic because I minored in mathematics here, and I did not feel supported as a woman in a male dominated environment by my peers, or professors. I interviewed seven other women who have been in STEM classes here at CSUMB. These women had similar experiences to me, and have struggled with the anxiety of being a woman in a male dominated environment. Women are more likely to drop out of their STEM major than their peers, and the fact that they do not feel supported to this day is a huge problem.

After doing extensive research I believe that the best way to make women feel better supported in their STEM classes is to mandate educators and teacher assistants in STEM majors to complete a gender equity training to become more aware of the struggles females go through in STEM majors and education. I think this will be effective because it brings awareness to this issue that most people do not know about. With bringing awareness to the fact that women are marginalized in STEM majors hopefully educators will better support women in their major courses. With better support from people of authority I am sure that there are less women dropouts in the future, and better female representation in the future.

The gender equity training that I recommend is below. I hope you take the time to review it and take it into consideration. Thank you for taking the time to read this email. I look forward to hearing back from you, and your opinion.

--
Camille Prendergast

Link to online training

Critical Reflection

This capstone project was a great experience for me. It was a learning lesson for me, as a future educator. I think this lesson was really eye opening for me to learn about other women's

experiences in STEM classes. I learned that other women had similar experiences to mine in STEM classes in college. I learned that other women were bashful to raise their hands and participate in the class. I also learned that it is really difficult to get other people to participate in research based learning. I reached out to a lot of women in hopes that they would participate in my Google Form. I probably reached out to twenty to twenty-five women to participate in my survey and only seven of them responded. I had to be persistent, and reach out multiple times for a lot of them to even respond to me. This was really frustrating to me, but in the future if anyone asks me to be a part of their survey I will gladly participate. I understand now that it is crucial to get responses for a research based project.

I also learned about ways we can better support women in STEM for the future. I want there to be more women in STEM fields in the future. I want there to be better representation of women in STEM fields so young girls feel more encouraged and confident pursuing STEM in the future with the knowledge that other women have paved the way for them. I want women to feel better supported in STEM classes in college so that they feel like they can speak up in class and actively participate like their male peers. I want for women to never feel like they cannot stick up for themselves in these classes because they are one of few women in the environment. With better representation and support there will be more women in the future. With more women in STEM fields there will be less and less male dominated environments, classrooms, and settings. The more women in these fields the better.

Synthesis and Integration

The Liberal Studies MLOs required coursework, and this Action Research Project has deeply affected my future professional career. I think that I have a much greater understanding of the educational issues happening today in the United States. I also have a deeper understanding

of the importance of inclusive education, and a multicultural classroom. My perspective has completely changed from what it was before. I think the liberal studies courses that I took also helped me practice and prepare to make lesson plans, as well as practice my skills with technology. I was given a lot of inspiration on ideas for what to do in the future. I overall am super grateful for my experience as a liberal studies major, and am very glad to have chosen the major that I did.

This action plan has also completely changed my views on how girls and women are supported in education. Unfortunately we still live in a society where girls from a young age are discouraged from STEM subjects. Girls fall into the trap of a stereotype threat and have no confidence in themselves with STEM subjects, and over time turn away from taking harder and harder STEM courses, as well as pursuing STEM. As a future educator I will make sure that the young girls in my classroom feel confident in themselves with STEM subjects. I will empower the girl students in my class to pursue STEM in the future, and hopefully inspire them to continue to break the barrier of being a woman in STEM. I plan on closing the gap between the amount of women and men in STEM fields.

The necessary next steps that I need to do in order to become a teacher is complete a teaching credential program, and get my teaching credential. I plan on attending California State University at Channel Islands this coming fall 2023, and graduating in spring 2024. Being in a classroom three and half times a week will really help me prepare for having a classroom of my own. I think I am prepared to do so with the knowledge I know from my liberal studies major classes. After getting my teaching credential, I plan on being a teacher, and having a classroom of my own. From there I will go through a trial and error process on how I want to manage and teach my classroom. Though it is unknown how I will run my classroom, I do know that it will

be an all inclusive environment and a safe space for any student that comes through my classroom. I plan to teach with diverse learning styles, and have a curriculum that is culturally rich and inclusive. I will not exclude any student from being in my classroom. I plan on making each student feel seen, and comfortable. And I will empower young girls to feel strong and confident in math and science subjects, and encourage them to pursue STEM fields in the future.

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