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Factors Influencing Women's Preferences for STEM Professions: A Case Study of the University of Peshawar

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Abstract: *There is a widely held belief that there is an increasing gender gap in science, technology, engineering, and mathematics (STEM) worldwide. Women have achieved gender equality with men in certain professions, such as the humanities and social sciences. However, women still lack adequate representation in the highest positions of academia and the professional world in science, technology, engineering, and mathematics (STEM). This paper is grounded in institutional theory to explore the factors that demotivate or hinder women from joining STEM as a profession in universities. The research is based on a qualitative case study of the University of Peshawar. We conducted 20 interviews with female staff members in 13 STEM departments, with 32 female staff out of 183 faculty members. The collected data generated a total of 123 codes. The axial coding procedure generated 38 codes, which were grouped into fourteen distinct categories and four overarching themes of (1) male dominant culture, (2) multiple influences, (3) professional environment, and (4) job opportunities. The study highlights the complex interplay between societal attitudes and gender in STEM fields, emphasising the need for comprehensive strategies to promote gender equality. Addressing these factors and thoroughly analysing women's engagement in STEM departments is crucial.*

Key Words: Gender Disparity, Science, Technology, Engineering, Mathematics, Female, Male Dominant Culture, Women's Participation

Introduction

Gender disparity in STEM fields remains a pervasive global challenge, with women significantly underrepresented, particularly at senior academic and professional levels. This imbalance hinders societal progress and innovation (Castillo, Grazzi, and Tacsir, 2014). The situation in Pakistani universities mirrors this global trend. Although women comprise nearly half of Pakistan's population, they face limited opportunities in STEM and are disproportionately absent in leadership roles across various professions (Pakistan Council for Science and Technology, 2013-14). Several interrelated factors contribute to this underrepresentation, spanning individual, familial, institutional, and societal levels. Cultural norms, social networks, and gender stereotypes significantly shape women's career trajectories within STEM disciplines (Castillo et al., 2014). Moreover, women encounter numerous challenges in balancing personal and professional responsibilities, further exacerbating their underrepresentation in leadership roles. This productivity disparity, often called the "productivity puzzle," persists and contributes to the lower promotion rates of women in STEM (Cole & Zuckerman, 1984).

Developed countries have consistently attempted to address and research the challenge of gender disparity in STEM across all educational levels. In Pakistan's context, however, investigations into women's gendered experience concerning the choice of STEM departments at the university level have yet to be explored. This paper contributes to this aspect of women's lives by drawing on qualitative research findings in the selected STEM departments of the University of Peshawar in Khyber Pakhtunkhwa province.

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The findings should offer guidance on enhancing women's visibility and participation in science (Morley & Crossouard, 2016).

Literature Review

Women are a minority in STEM fields today; even fewer are in top leadership positions in industry and academia. In the context of universities, potential factors explaining the gap could be that women invest more time in teaching than research, which also affects career prospects in STEM fields. Women's leaving STEM affects the economy, as the most successful companies are diverse. The public continues to hold a negative image of female scientists, believing that a successful scientist must be male. Sometimes, even female PhD holders underestimate their competence compared to males. The problem facing women in STEM is not just about the institutional environment of universities but the wider social structure, including familial responsibilities, cultural stereotypes about them, and androcentric job structure and work environment. For instance, as mothers, it is difficult for women to consistently attain leadership positions in their careers vis-à-vis their male colleagues in an environment which does not support them as effectively as are usually males.

The relatively lower number of women in STEM and their poorer performance in the professional world can be said to begin in childhood. Children's perceptions of STEM are associated with peer and family dynamics, school-level predictors, and teachers' perceptions. Since parental beliefs and expectations influence children's perceptions of STEM, traditional gender roles and gender inequalities within the family may encourage stereotypes and potentially hinder young girls' pursuit of STEM careers (Tamim, 2013). Among other factors, parental support and exposure to STEM professions, especially when the parents have a STEM job, contribute to girls' interest in and participation in related subjects. Nonetheless, socioeconomic differences may restrict children from low-income backgrounds from engaging in STEM education. Furthermore, the quality of educators and the learning environment play an important role in determining students' interest and performance in STEM fields. Teachers' perceptions and approaches and access to resources influence students' perspectives and decisions about STEM (Thibaut et al., 2018).

Women usually receive lower pay, fewer promotions, and less success in winning grants. For instance, in their study of 26 EU countries, Boll and Lagemann (2019) found that in 2014, the cross-country gender pay gap stood at 14.2%, but within some countries, e.g., Estonia and Germany, the figure stood at 20%. This disparity is also evident in other regions. For instance, women comprise only 18% of STEM students globally (Alam & Tapia, 2020). In various countries, including Sweden, gender equality initiatives have made strides, yet significant gender gaps persist in STEM fields (Yousaf & Schmiede, 2017). Women's representation in engineering, technology, and STEM jobs of the future remains disproportionately low, posing challenges to achieving gender balance in these sectors globally (Alam & Tapia, 2020).

Seeing female teachers inspires girls to pursue a career in STEM and demonstrates the importance of gender equality in education. Gender biases in teachers' attitudes and expectations influence girls' interest and self-assurance in STEM. When teachers form assessments of student abilities, they do so based on gender, leading to disparities in the learning environment and reducing girls' participation in these subjects (UNESCO, 2017). Finally, gender stereotypes perpetuated by teachers contribute to how students see themselves and which interests and career aspirations they develop, especially for girls belonging to minority groups. The instructional approach is important in creating a female-friendly STEM learning environment that helps girls become more interested in these fields. Applying cognitive activation in the problem-based learning classroom can enhance students' problem-solving and critical thinking skills, improving mathematics and science performance (Tamim, 2013).

Furthermore, these strategies allow students to approach problems from various angles, make mistakes, and utilise their knowledge in various applications. The connection between teachers and students also plays a vital role in academic achievement and interest in STEM fields. When teacher-student relationships become gender-biased, it promotes inequality and existing stereotypes. Evidence indicates that girls obtain less instruction time, pose fewer questions, and receive less praise than boys, resulting in unbalanced participation in STEM (UNESCO, 2017).

Moreover, a school's location can significantly affect how teachers and students interact. There is a significant difference between urban and rural regions. Furthermore, the portrayal of male and female characters in textbooks significantly shapes the perception of gender. More often, textbooks picture men more commonly depicted as working in STEM careers than women; this results in students growing up with the image that STEM careers only belong to men. It is crucial to establish laws and policies that uphold gender equality and guarantee equal treatment for all to institutionalise support for girls in STEM. For example, gender acts and processes encourage women in STEM to help shift social norms and behaviours to create more equitable environments for learning (Tamim, 2013).

Mass media, such as television programmes and commercials, profoundly impact public attitudes and views of gender norms and stereotypes in STEM. Gender stereotyping can affect girls' beliefs about their potential and career aspirations in STEM. Positive media portrayals of women in STEM fields can boost young girls' interest, while overuse of stereotypes and denigration of their accomplishments can discourage their participation. Social media also plays a crucial role in spreading stereotype messaging in STEM; current research shows that negative information about STEM is prevalent on social media platforms in Latin America. Social media rampantly shares stereotypes, with girls and young women playing a key role in their promotion. A study revealed that females, often the targets of mathematics stereotypes, recorded 70% of insulting statements about math. This alarming fact reveals that women themselves embrace gender stereotypes, manifesting in offensive messages (UNESCO, 2017).

Like in many other areas, the gender gap in STEM education in Pakistan is indicative of more general societal inequality. The country has prioritised education, with STEM recently introduced as a separate subject or speciality, starting in primary school. However, the disparity between girls and boys in STEM fields is staggering. Only a small percentage of girls enrol in the speciality, which is a logical continuation of the general gender enrolment inequalities that often result in fewer opportunities for general education. Extant research has investigated women's security problems, the potential of higher learning education concerning women's empowerment, the effect of patriarchal control on employment opportunities, and the linguistic problems with lower-working-class women (Tamim, 2013). Research suggests that Pakistani culture frequently restricts women to conventional household responsibilities, conditioning them to avoid assertiveness and leadership, which are considered "masculine" attributes (Qadir et al., 2011). As a result, the socialisation process may create psychological pressure and strengthen subservient conduct. The labour market remains closed to females due to their household work, household duties, and cultural constraints. Even when women attain leadership positions, navigating male-dominated environments and using language deeply rooted in their upbringing can be challenging (Tabassum & Nayak, 2021). Recent initiatives like introducing a STEM programme in KP schools and establishing a specialised science lab aim to expand STEM opportunities for girls and boys (Shehzad, 2020). Khyber Pakhtunkhwa, one of Pakistan's provinces, faces significant educational gender disparities. While more educational institutions cater to male students, recent trends show improvements in girls' education. Girls outperform boys in certain subjects, such as the humanities, but fall behind in STEM-related fields, such as pre-engineering. Despite their academic achievements, female students still face challenges in STEM education; the same holds for women STEM professionals in universities.

Theoretical Framework

This study employed institutionalist arguments to examine factors influencing women's decisions to become professionals in STEM departments of universities. An institution is a set of established constraints, including formal regulations and informal norms, that help restrain human actions (North, 1990). The formal and informal rules structure human preferences and behaviour. While the former impacts workplace conduct-based disciplines, the latter emanates from societal disciplinary contexts. Moreover, universities do not function as independent entities; they interact with societal systems that influence professionals from all spheres. Thus, it can be hypothesised that young women professionals entering STEM departments in universities may share certain personality traits, leadership qualities, and intellectual biases. Upon joining a university department, they can encounter challenges within a "masculine" organisational culture, which contributes to the existence of a glass ceiling; policy guidelines against sexual harassment may be ineffective if they are not integrated into the broader institutional

context where gender discrimination persists (Mehmood, Chong, & Hussain, 2018). For instance, female scientists may hesitate to report harassment due to fear of social backlash from colleagues, family, and the community (Malik & Courtney, 2011). Considering these propositions, the framework seemed more appropriate for exploring the systemic barriers women face in joining STEM departments within Pakistani universities.

Research Methodology

The findings of this paper are based on an exploratory case study of the University of Peshawar, Khyber Pakhtunkhwa, Pakistan. The case study approach was employed due to its suitability for exploratory research and the flexibility to allow multiple data collection tools (Yin, 2018). Several factors informed this decision. It serves as a hub for a diverse student body, catering to the educational needs of students from various cultural backgrounds across Khyber Pakhtunkhwa, Pakistan. Regarded as the mother institution within the province, it offers a wealth of experience in STEM education, spanning decades compared to other local universities. The university has six faculties housing a total of 47 departments, with two faculties encompassing 13 STEM departments and employing 183 STEM faculty members.

The descriptive gender classification for staff in two faculties of the University of Peshawar's STEM departments is as follows: the Faculty of Life and Environmental Sciences has eight departments with 86 male staff and 24 female staff, totalling 110. The Faculty of Numerical and Physical Sciences has 65 male and eight female (total 73) staff in the five departments. The university has 13 departments in these two faculties, with 151 male and 32 female staff, totalling 183.

Not every faculty member was likely to participate, so probability sampling was not deemed suitable. Instead, the study employed sequential sampling, recognised as a key element in sampling methodologies (Bryman, 2012). This approach was chosen to ensure representation across various factors influencing sample sizes, such as the study's scope, research topic, and data collection methods. A sample size of 20 participants was selected to document the views of female faculty members concerning the objectives of this study.

We conducted life history interviews with female academics to learn about their gendered experiences within academic institutions, focusing on formal and informal institutional influences on their progression. Life history is concerned with understanding people's perceptions and interpretations of their past experiences rather than interpreting these experiences as having any objective reality. The researchers sought to interpret the influences of formal and informal institutions underpinning participants' life stories and how they relate to their perceptions and experiences regarding STEM careers. This allowed us to collect "thick descriptions" (Geertz, 1973) of their experiences, thereby providing deeper insight into how different influences, such as class, linguistic background, ethnicity, gender, and life stories, interplay to influence their professional attitudes and aptitudes. Following the principles of research ethics, we have avoided using interviewees' names. Moreover, rather than using pseudonyms, we have subscribed to using alphanumeric code for each interview.

Result and Discussion

Six out of 20 research participants were under 25, eight were 25-30, and the rest (6) were over 35. Likewise, 12 interviewees had 2-5 years of work experience in STEM departments, five had over five years of work experience, and the remaining three had less than two years of work experience. The data transcripts generated 123 codes. After axial coding, 38 codes were arranged to extract 14 categories and four themes. These themes were (1) a male-dominated society, (2) multiple influences, (3) a professional environment, and (4) job opportunities, each of which are discussed below.

Male Dominant Society

"Male Dominant Society" was the first theme to emerge. We generated this theme from four categories: "biologically/genetically technical", "progression in the field", "general role," and "socially fit". The participants said that the society in which we live in Pakistan is male-dominated. They asserted that the traditional role of a male is to undertake challenging jobs, while females are not typically involved in such

roles. They stated that STEM departments were more suited for men than women, and they should assign females to jobs in medicine and teaching. Similarly, most participants stated that STEM departments are technical fields, with male candidates typically available for such positions. Table 1 below gives a snapshot of the theme, associated codes, and the narratives from the interview transcripts.

Table 1

Male dominant society – codes, categories, and narratives

Themes/Categories	Codes	Narrations
Male Dominant Society: Socially Fit	Society is a male-dominant	"Our society is male-dominated, and females are not usually allowed for technical education. That is why male students are more involved in the science, technology, engineering, and mathematics departments" (N1).
	Males are acceptable	"Males are acceptable in science, technology, engineering and mathematics departments because all these departments are linked with males" (N14).
	Difficulty in accepting females	"We do not have carriers in the sciences [STEM] because our society has difficulty accepting females in these fields" (N2).
Male Dominant Society: Biologically Technical	Involved in technical departments	"Males are mostly involved in technical departments, especially engineering, technology, and other technical works. That is why we can say that it is the field of male" (N7).
	They are, by birth, technical.	"Male technical thinks about things, and they are by birth technical. I think this phenomenon is from God" (N17).
	Fit in the fields	"I think the technical department is the field of male students because they are strong and technical fields need stamina and powerful physics. Male students can best fit in these fields" (N10).
Male Dominant Society: Socially fit	Males are physically strong.	"Engineering, technology, and other technical fields need good health and a strong body. Males are physically strong, and girls cannot handle abstracts, so they should avoid physics and mathematics" (N9).
	Male is stronger	"Males are stronger and physically fit for technical and engineering work, Which is why they choose the field that suits their nature. Females are not strong enough to fulfil these hard jobs" (N5).
Male Dominant Society: General role	To do the hard and technical work	"The role of the male is to do the hard and technical work. Therefore, most of the time, females do not go for STEM departments as much as males" (N17).
	Males perform hard work.	"It is about the role and duty of male and female. In our culture, the male performs hard work, and the female engages in the light works" (N7).

Multiple Influences

This theme was from three categories: (1) personal, (2) family, and (3) peer influence, as illustrated below. The participants said multiple influences were barriers for females. Females are not dominant like male participants. They depended on others, particularly family members and friends; thus, they took the same path of medicine, teaching, and banking. They follow their family and peers more than they choose STEM departments.

Furthermore, female preference should not be based on hard work or technical work. Most females work in medical fields, with less hard work and more technical work. Table 2 provides the descriptions.

Table 2

Multiple influences - codes, categories, and narratives

Themes/Categories	Codes	Narrations
Multiple influences: Family	Family members' preferences	"Every family wants to enrol their female in medical science subjects because these subjects suit the female. I think that is why the females are not interested in the STEM departments" (N6).
	Family's insistence on studying medicine.	"Let me give you the example of my younger sister. Like me, she wants to join the STEM department, but my family insists on joining the medical profession because the medical field has many job opportunities" (N10).
	Females follow family members.	"I think females are not as independent in decision-making as men. That is why they follow their family members and join the field their families prefer" (N11).
Multiple influences: Peer	Significance of Peers	"The influence of the peer also impacts the female students' decision towards the STEM subjects. On inter level, the students choose their field, and the peers have a vital role in the decision" (N20).
	Peer motivation	"When I was a student, my friends discouraged me from choosing engineering because they thought there were many job opportunities for male students" (N19, N13).
	Friends' suggestions	"I have worked in the Physics Department for the last seven years. I opted for the subject of Physics because my friend suggested that I would get a job easier" (N8).
Multiple influences: Personal influence	Own choice	"I think STEM departments are good for females. The females should be encouraged to join these fields. Joining this field was my own choice" (N8, N9).
	Females' preference to enter the medical field	"Most males wish to join the engineering field, and females wish to join the medical fields because females are not so strong to do technical jobs" (N12.N16, N15, N13).
	Importance of personal preferences	"Everyone joins the field which they like. Nowadays, the students are much more mature, and they understand what is right and wrong for them. Personal preference matters when selecting any job" (N20).

Professional Environment

The third extracted theme is the "professional environment." We extracted this theme from three distinct categories: (1) 'job security, (2) institutional role, and (3) the nature of the job. Females are concerned about their professional environment when choosing a job. Stereotypically, females prefer jobs that have a caring edge to them. It has been observed that the nature of jobs in the STEM department is quite challenging, competitive, and individualistic in the sense of being output-oriented. Table 3 below presents the narratives in this regard.

Table 3

Professional environment – codes, categories, and narratives

Themes/Categories	Codes	Narrations
Professional environment: Job security	Providing jobs in fields	"Not all, but some STEM provides jobs in different fields. Some of the females are reluctant to perform their jobs in the field. It could be one of the barriers for females to join the STEM department" (N1).

Themes/Categories	Codes	Narrations
Professional environment: Nature of Job	Work outdoors	"Females think that they will work outdoors in engineering and technology fields. That is only a wrong perception. We are in the STEM department but working in the university, so this perception is wrong" (N9.N3).
	Reluctant in fieldwork	"In my view, females are reluctant to do fieldwork, and they choose medical professions because they offer jobs in medical-related colleges and hospitals" (N19, N13, N14).
	Perception of STEM as a hard job	"STEM jobs are considered hard jobs. Therefore, most females think these jobs are only carried out by male candidates" (N2, N17).
	Teaching, medical and company-based jobs	"The family and females prefer teaching, medicine, and company-based jobs. In science and technology, most jobs are field-based and out of the institutes. I mean in engineering. It could be one of the reasons that the females choose other fields compared to STEM fields" (N5, N11).
	Choose institution-based jobs.	"Females are not dominant in society. Their families want them to do their jobs where they are secure" (N18, N12).
Professional environment: Institution role	Institutes provoke the students.	"Institutions play an important role. Most institutes provoke the students towards medical lines and focus on other departments rather than science, technology, and engineering" (N11, N3).
	Promotion of medical sciences.	"Nowadays, if you look at the colleges at FSC level. They advertise their students who get admission in medical sciences" (N2).
	The role of the institutes is very important.	"The role of the institutes is very important; they should counsel the students that just like medical sciences and other fields, STEM departments also provide job opportunities and other benefits. Females are also suitable in STEM subjects" (N19).

Job Opportunity

This theme has been extracted from four categories : (1) the scope of the job, (2) the needs of the community, (3) attractive salaries, and (4) job availability (Table 4). The participants reported fewer job opportunities for females in STEM departments than in other departments. There are many job opportunities in other fields, such as education, medicine, and banking. Similarly, the participants reported that females get jobs more easily in fields other than STEM.

Table 4

Job opportunities – codes, categories, and narratives

Themes/Categories	Codes	Narrations
Job Opportunity: Scope of the job	Many opportunities	"In the medical profession, there are many opportunities for people, especially females. Most females are in the medical profession" (N1, N16).
	Fewer opportunities	"In the STEM field, there are fewer opportunities for the people because this field is limited and most of the jobs in STEM field are field-based" (N19).
	Opportunities in the medical field.	"For females, there are opportunities in the medical field and other fields such as teaching. Females prefer teaching fields because they manage to teach with household works" (N12)

Themes/Categories	Codes	Narrations
Job Opportunity: Need for Community	Need of the people	"On a community level, people expect caring behaviour from females. From childhood, people and family members asked the girl to join the medical field because this is the people's need" (N20, 10).
	Recessive fields	"Science, technology, and engineering are very recessive fields. Most of the people do not want to enrol their female in these fields" (N7, N20)
Job Opportunity: Attractive Salaries	Provide very low salaries.	"STEM departments are very narrow fields, and in Pakistan, there are very few job opportunities" (N13).
	Very good salaries	"In teaching and other fields just like medical fields, there are many opportunities for the females, and they offer a secure work environment with good salary" (N4, N6, N12)
Job Opportunity: Job Availability	It is difficult for a female to find a job.	"It is very difficult for a female to find a job in engineering and technical fields. This is due to the male dominant society and opportunities for the males" (N17, 16)
	Jobs in the STEM department are very difficult.	"On a community level, if we look at the jobs, there is a job opportunity in teaching, hospitals, banks and other departments, but to find a job in the technical field in, especially in a STEM department, is very difficult" (N1, N9, N19)

Discussion

The study's findings indicate that various factors, such as individual characteristics, family dynamics, societal influences, and work environment, impact women's preferences in choosing fields other than STEM. Individual factors, such as a woman's talents and preparedness for education, greatly influenced her decision to occupy a position within the field of STEM. This research has demonstrated four interrelated institutional factors discouraging women from joining STEM: job opportunities, workplace environment, various determinants, and a male-dominated society. Charlesworth and Banaji (2019) findings corroborate the data reported here. Furthermore, a different study postulated that it is important to understand and resolve the complications linked to gender in science, technology, engineering, and mathematics. Over the last few decades, there has been an extraordinarily significant shift in the gender dynamics within educational institutions and professional environments. During this time, far more representation, fairer compensation, and recognition have been achieved through awards, scholarships, and publications. However, while there has been a cultural shift, there are still significant differences between the two genders within science, engineering, technology, and mathematics.

In a comparable setting, a separate study validated the present study's conclusions, highlighting the widely acknowledged and lamented phenomenon of a higher representation of men in many STEM. When analysing gender inequality, the primary focus is on discrimination and socialisation, which also form the basis for most policy suggestions (McDool & Morris, 2022). The studies conducted by Blažev et al. (2017) and Makarova et al. (2019) found that both males and females associate study of mathematics with the highest levels of masculinity, followed by physics in second place, and chemistry with the lowest levels of masculinity attribution. According to Applewhite (2002), female students evaluated all subjects as equally masculine. However, there is a notable disparity among male students in how they see mathematics in terms of masculinity, as opposed to chemistry and physics. Our research suggests that preconceived notions about gender and science can impact young people's career aspirations, particularly in mathematics and science, and their likelihood of pursuing a STEM degree at university. This applies to both adolescent females and adolescent males. Our research indicates that presenting a more gender-neutral portrayal of science may increase the likelihood of females pursuing jobs in the STEM fields (Charles & Bradley, 2009; Else-Quest et al., 2010). The article outlined the low availability of employment opportunities for women in STEM fields. It demonstrated that women least prefer to study and join STEM as a profession – except medical sciences – in comparison with other departments (Makarem & Wang, 2020). Women also hold inaccurate assumptions regarding employment opportunities in STEM areas.

Study Limitations and Strengths

This study relies exclusively on data from female faculty members without involving male teachers and male/female students. That could have enhanced the validity of the findings. Additionally, the data was collected only from STEM departments of a single university, viz., the University of Peshawar. Future qualitative research researchers could choose designs offering a breadth of data for the generalizability of the findings. Mixing qualitative and quantitative methods for a more robust analysis is a better approach.

Conclusion

Ensuring the participation of women in STEM is almost an emergency in Pakistan. However, the current proportion of women employed in these professions remains far below the desired standard. The study's findings revealed that multiple factors influence women's preference for STEM in universities. We have identified four factors influencing female involvement in science, technology, engineering, and mathematics: a male-dominated culture, limited career opportunities, a lack of a professional atmosphere, and diverse influences. It is imperative for institutions, governments, and families to actively promote awareness among women and foster their interest in pursuing careers in STEM subjects, encompassing science, technology, engineering, and mathematics.

Recommendations

1) The government's involvement is crucial in addressing this issue, closing the gender gap, and encouraging more women to pursue careers in STEM fields (science, technology, engineering, and mathematics).
2) The role of educational departments in advising female students and encouraging their active participation in STEM is essential and should not be overlooked.
3) It is important to dispel misguided beliefs and misconceptions about STEM professions while highlighting the positive aspects, such as career prospects and overall potential.
4) A follow-up study is recommended, preferably using a mixed-methods design with a larger sample size and the inclusion of additional institutes to enhance the generalizability of the findings.
5) Following Nimmesgern (2016), we would argue that to enhance women's enrolment and motivation to join STEM, it is critical to change the outlook and level of gender in the field of science. Given the influence of the social structure, it is crucial to advocate for gender equality and alter cultural stereotypes effectively.
6) Gender stereotypes perpetuated by family members and teachers at elementary levels contribute to how students see themselves and which interests and career aspirations they develop, especially for girls who are a minority in STEM professions, except medicine.

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