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The Gender Divide in Higher Education: Analyzing Subject Selection and Stereotypes through Concurrent Design

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Abstract

This study examines the gendered trends in subject selection in Nepal's educational system, focusing on how societal stereotypes influence students' choices. Historically, Nepalese education has been shaped by gender norms, with males directed toward technical and professional fields like engineering and medicine, while females are encouraged to pursue humanities and education. Despite government efforts to promote gender equality, deeply ingrained biases persist, particularly in rural areas, limiting opportunities for women in male-dominated fields. The research highlights that families, schools, and universities often reinforce these norms, with teachers and counselors subtly guiding students toward gender-conforming choices. The study also explores the impact of earning potential and work-life balance on subject selection, noting that men are more likely to pursue high-paying fields, while women often opt for careers offering better work-life balance. Additionally, the lack of female role models in technical fields discourages women from entering STEM disciplines. The findings underscore the need for initiatives that challenge traditional gender roles and provide equal opportunities for both genders to pursue diverse educational paths.

Keywords

Gendered curriculum, Subject selection, Educational stereotype, Influence.

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1. Introduction

Choosing a subject is a challenging task since it is closely tied to the career paths students are likely to pursue in the future. At the undergraduate level, gender perceptions often play a significant role in this decision-making process, mirroring broader societal norms and expectations. These gender roles and stereotypes influence educational trajectories, shaping both academic and professional choices.

Subjects are frequently classified as “masculine” or “feminine” according to gender standards. For instance, the humanities, arts, and caregiving-related subjects are perceived as feminine fields, whereas STEM (science, technology, engineering, and mathematics) fields are frequently linked to masculinity (Francis, 2002). As a result, preconceptions that these subjects are “too tough” or “technical” may deter women from pursuing careers in computer science or engineering. On the other side, men who choose “nurturing” or “soft” careers, like teaching or nursing, could face stigma.

In the United Kingdom, the Equal Opportunities Commission (2007) asserts that girls continuously surpass boys in academic performance across all school levels. This does not, however, always help women land well-paying positions. Gender stereotyping, which holds that boys and girls have distinct educational and vocational aptitudes, is one reason they propose for the discrepancy between achievement and occupation.

Traditional gender roles are also frequently portrayed in educational materials, with women in domestic or submissive roles and men as leaders or adventurers. For instance, textbooks may under-represent the contributions of women while highlighting the accomplishments of men in politics and science (Sadker & Zittleman, 2009). Further, gendered language in textbooks and classrooms can subtly reinforce inequalities. For instance, using male-centric terms

like “mankind” or defaulting to masculine pronouns (Skelton & Francis, 2009). Beyond the formal syllabus as well, the “hidden curriculum” perpetuates gender norms through interactions, expectations, and school culture. This includes teacher expectations, division of labor in classroom tasks, and reinforcement of stereotypical behaviors (Connell, 2009).

During agricultural-based societies, education was less valued however, after the emergence of industrial society, education became an integral part of human. The socializing responsibilities of family also shifted from family members to educational institutions. Due to this, education is now becoming a vital part of an economic life. In the meantime, for many, choosing the right subject is challenging as curricula are mostly dominated by men, ignoring the contributions of women to movements, conflicts, and nation-building (Kelly, 1986).

2. Subject Choice Trend in Nepal

The educational decisions of children in Nepalese households are significantly shaped by their parents’ goals. Instead of focusing on career progression, many families see education for girls as a way to improve their chances of marriage. As a result, females might not be allowed to pursue professions like mechanical engineering or construction management that are considered “unsuitable” for women (Gurung & Bista, 2021). Deeply ingrained prejudices still exist despite the Nepalese government’s efforts to advance gender equality through programs like the “Education for All” project and scholarships. Male students predominate in technical professions even in higher education (Karki *et al.*, 2019), while female students are over-represented in faculties of education and the arts. This illustrates that national educational programs are biased against female.

In Nepal, societal preconceptions have significant impact on subject selection. Males are encouraged to seek professions and technological fields that are seen as profitable and prominent, like engineering, computer technology, and medicine. By contrast, women are frequently directed into fields such as education, the humanities, or the social sciences, which correspond with conventional norms regarding nurturing and caregiving (Sharma, 2020). Peers, families, and even schools all serve to further reinforce these views.

Adhikari (2022) argues that such gendered segregation of subjects has contributed to the wage gap, occupational segregation, and under-representation of women in leadership roles in technical industries. In fact these outcomes not only limit personal growth but also constrain the nation's ability to harness its full human resource potential. Nonetheless, in the recent years, there are some progress in breaking these stereotypes, particularly in urban areas. Campaigns promoting STEM (Science, Technology, Engineering, and Mathematics) education for girls, such as "Girls in STEM Nepal", are encouraging young women to challenge traditional norms (Pant, 2021). This trend shows shifting perceptions of people in terms of female and subject selection. However, these initiatives face resistance in rural areas, where cultural and logistical barriers remain significant.

3. Factors Affecting Subject Selection

Students' choices of subjects can be influenced by various factors, including socialization, institutional practices, and perceived earning potential. Universities, schools, and families all contribute significantly to perpetuating these ideas. Students may be unintentionally led toward gender-conforming decisions by teachers and counselors (Sadker & Zittleman, 2009). Similarly, women are often discouraged from studying male-dominated disciplines like mechanical engineering or physics due to a lack of visible female role models in these fields. In a similar vein, the dominance of women in professions like social work or literature can make men feel excluded (Blickenstaff, 2005).

Another significant factor is perceived earning potential. Women may prioritize work-life balance and choose professions like teaching or healthcare, whereas men are frequently urged to pursue high-paying industries like technology or finance (Charles & Bradley, 2009). Gendered socialization can also impact students' self-confidence. Research shows that even when women perform on par with or better than their male classmates in math and science, they are less likely to believe in their competence in these subjects (Eccles, 1994).

Neo-Marxist perspectives add another dimension to this discussion, emphasizing the role of employers in shaping subject preferences. Employers may prefer male employees who are

perceived as more capable of working extra hours to increase profits. This bias often reflects poorly on women, undermining their achievements in education and reinforcing gender disparities back in schools and universities.

Preliminary surveys have echoed these patterns. For instance, findings similar to Blickenstaff's observations show that male students feel overwhelmed by the predominance of female students in at least five consecutive batches in the Social Work stream. This raises questions about the factors leading female students to enroll in humanities, often labeled as "female subjects". To explore these dynamics, this study has been conducted, and based on the above literature, the following alternative research hypotheses have been formed:

H_{1A}: There is relationship between Teacher's suggestion and subject selected in undergrad level.

H_{2A}: There is association between Parent's suggestion and subject selected in undergrad level.

H_{3A}: There is association between peer's influences and subject selected in undergrad level.

4. Methods

This study employs a concurrent research design to examine the perspectives of undergraduate students from three distinct academic disciplines: Science, Humanities and Social Sciences, and Management. Data collection was carried out through a Google survey, distributed to students enrolled in undergraduate programs across three colleges within the Kathmandu Valley.

The research targeted a total population of 368 undergraduate students from the aforementioned disciplines. Email addresses for these students were obtained from the respective departments, and the survey link was disseminated to all individuals in the population. Of the total population, 68 students, representing the three disciplines, responded to the survey, thus constituting the study's sample.

The survey instrument comprised both closed-ended and open-ended questions, enabling the collection of both quantitative and qualitative data. While the responses yield valuable insights, the study recognizes certain limitations. The small sample size, confined to a specific geographic area (Kathmandu Valley), may not fully

reflect the diversity of students from other regions of Nepal. Furthermore, the voluntary nature of participation may result in a sample that is not representative of the broader social and economic demographics of the student population.

5. Findings

5.1 Gender Composition and Schooling Background

Among the respondents, 21 were male and the remaining 47 were female. All the students have graduated their higher school from private schools in Kathmandu. The respondents were asked about their proficiency in Social Studies, nearly 37% responded that they were average and about 47% said they were good in Social Studies until 12th grade. Similarly, their response in Science subjects found 37% were good, 33% were average and 20% were very good. This shows that the students were good both at Social Studies and Science subjects at grade 11 and 12. Nonetheless, more than 50% of students selected social science in the Bachelor's level.

Table-1: Frequency of Students from Undergrad Level

Faculty	Frequency	Percent
Science	17	25
Humanities and Social Science	38	55.9
Management	13	19.1
Total	68	100.0

Source: Field Survey, 2024.

From Table-1, it is evident that out of total 68 students responded, more than half were from humanities and social science faculty followed by science and management faculty.

Gender composition in different subjects in plus two and undergrad level is shown in the Table-2 on the next page. Data in this table distinctly show that there were high number of female studying in science following social science and Management subject in Plus Two level. However, in undergrad level, the number of female students studying science, shifted to social science abruptly. On the other hand, the subject selection by male found no change in undergraduate level. Nonetheless, the fluctuating numerical among female students raise question in terms of influence or their personal choice for subject selection in undergraduate level.

Table-2: Gender Composition in Different Subjects in Plus Two and Undergrad Level

Gender	Subject selection in Plus Two Level			Total
	Science	H & Social Science	Management	
Male	10	6	4	20
Female	27	12	9	48
Total	37	18	13	68
Gender	Subject selection in Under Graduate Level			Total
	Science	H & Social Science	Management	
Male	10	6	4	20
Female	7	32	9	48
Total	17	38	13	68

Source: Field Survey, 2024.

One of the female respondent replied why she joined social science is that, *"I am interested in Psychology and helping people. I find it fascinating and want to make a career out of it in future"*. (Female Respondent 47). Similarly, Respondent 24 writes that *"Psychology is very interesting subject and social work as well. Both subjects were highly effective in enhancing individual's personality I took these subjects as major subjects in bachelors"*. (Female Respondent 24). Both the respondent seems more attracted toward social science subjects especially toward psychology and social work so they chose social science in under graduate level. Nonetheless, Respondent 19 believes that she landed in social science in under graduate level because her report in Plus Two was not good. According to her, *"I couldn't do well in Physics in Plus Two but I always had Psychology in my mind so immediately after Plus Two, I joined Psychology in under graduate level"*. (Female Respondent 19).

On the other hand, one of the male respondents (Male Respondent 31) who remained constant in subject selection in undergraduate level writes that *"Science is my passion. The return on studying science is more than any other subjects. Further, I can change my subjects to social science in the future, if I wish to go on it"*. This statement also demonstrates the domination of science among Nepalese academics and male's preference in high return subjects.

5.2 Teacher's Suggestion and Subject Selection

When choosing their bachelor's degree subjects, students might greatly benefit from the advice of their teachers. Teachers can effectively advise pupils since they have a thorough understanding of academic programs and professional pathways. Their observations aid in matching students' interests and strong points with appropriate courses, guaranteeing well-informed and customized decisions. Furthermore, teacher recommendations can expand students' perspectives by addressing their questions and exposing them to less well-known subjects (Smith & Jones, 2021).

Table-3: Teacher's Suggestion for Undergrad Level

Teacher's suggestion for specific subject			Total
Science	H & Social Science	Management	
32	23	13	68

Source: Field Survey, 2024.

Table-4: Chi-Square Tests of Teacher's Suggestion and Subject selection

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.434a	2	.805
Likelihood Ratio	.436	2	.804
Linear-by-Linear Association	.316	1	.574
N of Valid Cases	68		
a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.59.			

Source: Field Survey, 2024.

The above table shows that teachers had suggested their students for subject selection in undergraduate level. These suggestion were mostly in science. However, Table-2 showed that the students didn't follow teacher's suggestions for specific subject. Although 32 students were suggested for science subject, only 17 students enrolled in science in undergraduate level. The number of students who selected social science in undergraduate level is higher than the number of students who were suggested for social science (23) by their teacher.

Statistically as well, there is no association between teacher's suggestion and subject selected in undergraduate level (see Table-4).

The Pearson Chi-Square value (0.434) demonstrates that it is not significant as P-value (0.805) is way too larger than significance value (0.05). In this case, the first null hypothesis is failed to reject which means there is no association between Teacher's suggestion and Subject selection in undergraduate level.

5.3 Parents' Subject Suggestion and its Effect

Parents' preference has also led it found that nearly 70% of parents of the respondent's preferences were Science and nearly 20 % preferred social science in Plus 2 or A level.

Table-5: Parent's Subject Suggestion and Subject Selection in Undergrad Level

Stream	Subject suggested by Parents	Subjects selected by the Students in Undergrad level
Science	46	17
Humanities and Social Science	18	38
Management	4	13
Total	68	68

Source: Field Survey, 2024.

Table-6: Chi-Square Test of Parent's Subject Suggestion and Subject Selected by Students in Undergraduate level

Test	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.431a	4	.839
Likelihood Ratio	1.509	4	.825
Linear-by-Linear Association	.021	1	.886
N of Valid Cases	68		
a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .76.			

Source: Field Survey, 2024.

Further, Table-5 shows that maximum students were suggested for science by their parents followed by social science and management in undergraduate level. However, the subject selected by the students in graduate level tells the different story. The Chi-Square Test for association between parent's suggestion for subject and actual subject selected by the students (see Table-6) is in

line with Table-5. The Pearson Chi-Square value (1.431) is not significant as P-value (0.839) is way too larger than significance value (0.05) which fails to reject the null hypothesis. That means there is no association between the parent's suggestion for their children in undergraduate level and the actual subject selected by the students.

5.4 Peer's Influence to Subject Selection

One of the respondent students studied Science in Plus-two level but selected social science (psychology) in undergraduate level. She responded, *"I have to get inside the clinical psychology field in later years so I choose social science (psychology) in undergraduate level"*. This shows her intention in the future and for that psychology remained her only option. However, in a query about why she is in social science at the Bachelor's level, she responded, *"First off my friend suggested me this and I did well throughout the two years in plus-two as well, so I have joined Bachelor's in Arts for developing my critical thinking and understanding myself better"* (Female Respondent 1). This response indicates unsatisfactory results in science subjects can lead students towards humanities and social science subjects at the Bachelor's level. In addition, peer's suggestion also plays an important role to select social science subject in university level.

To test if there is any association between peer's influences in subject selection in undergrad level, a Chi-Square test is conducted with the same data set.

Table-7: Chi-Square Test of Peer's Influence in subject selection in Undergrad Level

Test	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.527a	2	.014
Likelihood Ratio	8.714	2	.013
Linear-by-Linear Association	.596	1	.440
N of Valid Cases	68		

Source: Field Survey, 2024.

As P-value (0.014) is smaller than significance value (0.05), the Chi-Square value (8.527) is statistically significant (see Table-7) which rejects null hypothesis and accepts alternative hypothesis. That means there is association between peer's influences in selecting subject in undergraduate level.

Further, Respondent 3 writes that;

Although I got good results in finals terminals I would either fail Physics or sometimes Chemistry. These two subjects were too difficult for me no matter how much I tried. But deep inside I know I could've tried more, after opting for science for 6 months I had already realized I should have chosen some other field. Due to this as well, I was not regular in college, In class 11 you could say that I went to college just for 5 months if we count the total days altogether which was also one of the reasons I was performing badly, one problem led to other several problems like it led me to lack self-esteem, it took me a lot to bounce back in class 12. In Bachelor level, with the help of my friend I took social science (Female Respondent 3).

Despite the efforts, Respondent 3's academic struggles during Class 11, particularly with Physics and Chemistry remained challenging to her. These challenges created a ripple effect, leading to low self-esteem and compounding their difficulties. The respondent describes how one issue led to others, forming a cycle of problems that became difficult to break. However, despite these setbacks, they demonstrated resilience by working hard to recover in Class 12. Their experience reflects how academic struggles, mismatched choices, and inconsistent attendance can have far-reaching effects, but also shows that recovery and improvement are possible through determination and effort. Nevertheless, the peer's help and suggestion played an important role in subject selection in Bachelor's level.

One of the female respondents writes "It is easier to pass the exam in social science, so I enrolled in social work rather than B.Sc" (Female Respondent 16). Likewise, another female respondent writes "I like writing my emotions and thoughts and there is no such space in physics and chemistry or math subjects so, although my background is from science, I choose social work and psychology in Bachelor level" (Female Respondent 19). Both the statements above indicate that there is an assumption spread among female students in terms of toughness and softness in science and social science respectively. This indicates, they are escaping the so-called tough and male centric science subject despite their experience in science faculty in Plus Two level.

A male Respondent 27 who is currently pursuing B.Sc. CSIT writes, "I enrolled in B.Sc. CSIT because I am planning to hunt job in this field after my studies complete. As per my peers, there can be an opportunity for paid interns prior to our graduation so this is really fantastic!" (Male

Respondent 27). This statement shows that male student's subject choice is toward science. However, this might not be the situation in every male students. As per a male Respondent 38, *"I have lot of pressure from my family and peers for continuing B.Sc. Physics. My parents do not want me to join Lalitkala (Art) which I wanted to because they think this is what I have to study"* (Male Respondent 38). This indicates, parents still poses their dominance in terms of subject selection, over their children and the traditional concept on gender and subject selection is still prevalent.

6. Discussion and Conclusion

This study explores the factors influencing subject selection at the undergraduate level, with a focus on the impact of gendered perceptions, parental and peer influences, and teacher recommendations. The findings indicate that while gender roles continue to shape academic choices, no significant correlation was found between teachers' and parents' suggestions and the actual subjects chosen by students. Despite external recommendations, students tend to select subjects based on personal interests, academic strengths, and perceived career prospects.

Additionally, the research reveals that peer influence plays a pivotal role, particularly among female students, who may shift from science to social sciences due to a combination of academic challenges and societal expectations. The decision to pursue fields such as psychology or social work, which are often perceived as more "feminine", reflects a broader societal trend that associates caregiving professions with women, while technical fields are predominantly linked to men.

Interestingly, despite the persistence of gender segregation in subject choices, the study identifies emerging signs of change, particularly in urban areas. Initiatives aimed at encouraging women to pursue STEM subjects are gaining momentum. Overall, while traditional gender roles continue to influence subject selection, there is a growing recognition and opportunity to dismantle these stereotypes, allowing for more personalized and diverse academic decisions.

To conclude, the subject is itself a gendered. Male students prefer STEM curriculum and female prefer so-called a soft science. The subject selection is affected by various social factors and one of them is peers. This study highlights the critical need to address gender

biases in educational environments to ensure that all students, regardless of gender, have the autonomy to explore and pursue subject aligned with their interests, free from societal constraints. Such a shift not only benefits individual students but also fosters a more equitable and diverse workforce.

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