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## High School Students' Perspectives towards the Mathematics Teaching Profession

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**Abstract:** *This study aims to identify high school students' perspectives towards mathematics teaching profession. The study applied a quantitative survey questionnaire as the instrument of data collection. One private and one public secondary schools of Surkhet district of Nepal were selected as the sample schools based on the number of students enrolled in Science and Mathematics background after completion of School Education Examination. The students of grade twelve, who were studying Mathematics in Science stream, were the participants of this study. The questionnaire was distributed individually to 80 participants with the help of their mathematics teachers after describing the objective of the study. Collected data was analyzed descriptively using percentage, pie charts, and bar graphs. The data indicated that most preferred profession of the students was medical sector. The second preferred profession was IT. Around 25% students were interested on IT. The study revealed that most of the students were not interested in teaching mathematics as their future profession.*

**Keywords:** Interest, permanence, priority, promotion, respect

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### Introduction

Students can choose one of the streams within Science, Management, Education, Humanities, Law and other short-term and long-term technical courses after completion of School Education Examination (SEE) in Nepal. The selection of stream depends on the interests and the SEE grade of the students. If we ask "What is your future aim?" A very small number of secondary level students tell "To be a teacher." Most of the high-grade achievers in SEE enroll in Science and Management, and remaining students enroll in Humanities, Education, Law and other technical courses. Education stream aims to produce efficient teachers for different levels with different specialization subjects.

Teachers are fundamental components of the entire educational framework (Dewey,1997). They are responsible for both shaping and implementing the curriculum, highlighting the necessity for them to exhibit heightened professionalism in their roles (as cited in Poudel, 2006). The present situations of enrolment of low-grade achievers in education stream indicate the attraction level of students in teaching profession. Most of the undergraduates and graduates cannot get success in the exam of Teachers Service Commission (TSC) in Nepal. It is a current issue of education in the context of Nepal. The stakeholders should be serious on designing and implementing of relevant curriculum and the harmony of TSC curriculum and curriculum of universities. The researchers have around 15 years of teaching experiences from school to university level. From our experiences of teaching in ssecondary level mathematics, we can ask questions concerning the issue: 'Why most of the high scorer students are not interested in teaching profession? In the first phase, we conducted a survey to identify the interests of students in Science and Mathematics background in grade 12.

Bhargava and Pathy (2014) mentioned that positive attitude towards teaching profession can bring the quality in education by developing the sense of duty and professional competency. Before the 1990s, the term "teacher competencies" was used to describe the attitudes, knowledge, and skills of teachers, which were outlined extensively to support their effective and efficient performance in their profession (Kalkan & Dağlı, 2021). Kalkan and Dağlı added that the skills needed for teaching are divided into three parts: "professional knowledge," "professional skills," and "attitudes and values." These include things like knowing your subject well, understanding how to teach, and having the right attitude.

During teaching, students interact directly with the teacher. They notice things like the teacher's personality, attitude, and actions. By comparing different teachers, students create ideas in their minds about what makes a good teacher. Nonetheless, it remains essential to identify the qualities that teachers and students think define a good teacher (Almonacid-Fierro et al., 2021). Almonacid-Fierro et al. (2021) emphasize that a good teacher possesses a deep understanding of the subject they teach, and they carefully select the most suitable methods to convey the material clearly. They foster positive relationships and actively engage with their students, creating an interactive and supportive learning environment. Additionally, they demonstrate a strong dedication to the teaching profession, continually striving to improve their instructional skills and student outcomes. The ideal teacher should be well-informed and passionate about their profession, with a deep knowledge of the subject matter (Özabacı & Acat, 2005). They should possess strong language skills, ensuring they can communicate concepts clearly and effectively. Effective communication is crucial, so they must also be adept at listening and engaging with students. Furthermore, they should demonstrate a democratic approach in the classroom, promoting equality, encouraging student participation, and fostering a collaborative learning environment where every voice is valued. It's important to study these ideas to understand what students think makes a teacher great. There is no doubt that teaching should be more attractive profession than others to enhance the quality of education.

The common causes of attraction towards any profession are salary, prestige, workload and the satisfaction of the workers on that profession. The youths of 21<sup>st</sup> century love the soft works with high salary and prestige but teaching is not the profession with soft work and high salary. This is the main cause of low attraction of youths on teaching profession in the context of Nepal. Oyeleke (2022) mentions that poor educational system in the country, poor salaries, desire to get money immediately, love for soft work and the discouraging experiences of the teachers are the six major reasons of low attraction towards teaching profession in Nigeria. The same is the situation Nepal too.

Similarly, Cspedes and Gutierrez (2017) researched on the future of the teaching profession from the perspectives of students with - education major in Costa Rica and found that most of the students emphasized digital competency, ethics, orientation to learning and interpersonal communication, and cognitive and linguistic competences as the major characteristics of the teachers in 21<sup>st</sup> century. A study indicated that women are more interested in teaching than men and teaching profession will be dominated by women for some time (Tašner et al., 2017). The researchers also emphasized that job security, long vacation, favorable working schedule, and the opportunity of promotion are the main points of attractions of teaching profession for women.

Teaching is itself a hardworking and challenging profession because it is not easy to win the heart of many students and to teach in a way that everyone can understand. Hard work with minimum salary, lack of opportunities for transfer and timely promotion are the main reasons for the lack attraction in teaching profession in the context of Nepal. Mondal et al. (2011) studies on the job stress and job satisfaction of school teachers and found that teachers were partially satisfied and experiencing mild to moderate stress from their profession. They reported that irrelevant and impractical curriculum, less opportunities of career development, training and consultation as well as acknowledging their time and efforts were the main reasons of dissatisfaction on teaching profession. Ragusa et al. (2022) stated that

it's really important for future teachers to learn and practice soft skills during their training. Just adding these skills to the training program isn't sufficient; they need to actively use and work on them too.

In a survey of 300 mathematics teachers of Kathmandu valley, Tiwari (2014) found that the level of job satisfaction of mathematics teachers teaching from grades V to X in Kathmandu valley was moderate, however they had very heavy workload and the teachers were unsatisfied with their salary. This study also indicated that the large number of teachers had to work more than 30 hours per week and there was no significant difference between job satisfaction and gender. Also, Mainali and Belbase (2023) conducted a survey to identify the job satisfaction, professional growth and mathematics teachers' impressions about school environment. The study reveals that mathematics teachers are relatively satisfied with their profession, although in-service training, sufficient educational resources, school infrastructure and financial incentives are the major factors that influence on job satisfaction.

In addition, mathematics teachers have a limited or no access to teaching resources in rural and remote schools, posing difficulties for educators (Dhungana, 2023) as well as teachers. According to Alzebaree and Zebari (2021), students' evaluations of an effective teachers are linked to the teacher's social interactions and personal background.

After observing the current trend of teaching profession and its challenges in Nepal, we aimed to identify the perspectives of youths, basically the students of grade 12 with Science and Mathematics background towards the teaching profession in the context of Nepal. Mahato (2016) argue that secondary and lower secondary level teachers hold a highly favorable perspective regarding the government's involvement in professional development of teacher in Nepal.

The results of this study can be applicable for the stakeholders to encourage the high grade achievers into teaching profession to enhance the quality of education. Teachers' attributes and behaviors are often discussed within the frameworks of "competency," "quality," "standards," and "qualification." These terms (Karcı, 2016), though related, can sometimes be used interchangeably, leading to potential misunderstandings. Competency refers to the teacher's ability to effectively deliver educational content and manage the classroom. Quality encompasses the overall effectiveness and excellence of the teacher's performance. Standards are the benchmarks or criteria that define what is expected of teachers in terms of their skills and conduct. Qualification pertains to the credentials and training that certify a teacher's readiness to teach. The occasional overlap in these terms can blur their distinct meanings, causing conceptual confusion. Thus, this study indicates the current status of attraction level of youths towards teaching profession in general and mathematics teaching in particular, and their future aim as well as expectations.

### **Objective of the Study**

The objective of this study is to identify the perspectives of high school students in Mathematics and Science background towards teaching Mathematics. It also aims to identify the most preferred profession of the students in their future.

### **Methodology**

This study utilized a quantitative survey with structured questionnaire that included 4-point Likert scale and binary yes/no questions. The participants of this study were the students of grade 12 who were studying Mathematics in Science stream. One private and one public schools were selected purposively on the basis of the number of students enrolled in Science stream in Surkhet district. Altogether 80 students from the sample schools were selected randomly as the participants of this study. The questionnaire was distributed to the students in their mathematics class with the help of their mathematics teachers. Students were informed about the purpose of filling questionnaire, their voluntary participation in the study, anonymity, and freedom to answer or not to answer some or all survey questions. After collecting the questionnaire, their perspectives are categorized using frequency

distribution table and analyzed descriptively using pictorial representation, such as Pie charts and Column charts.

### Findings and Discussions

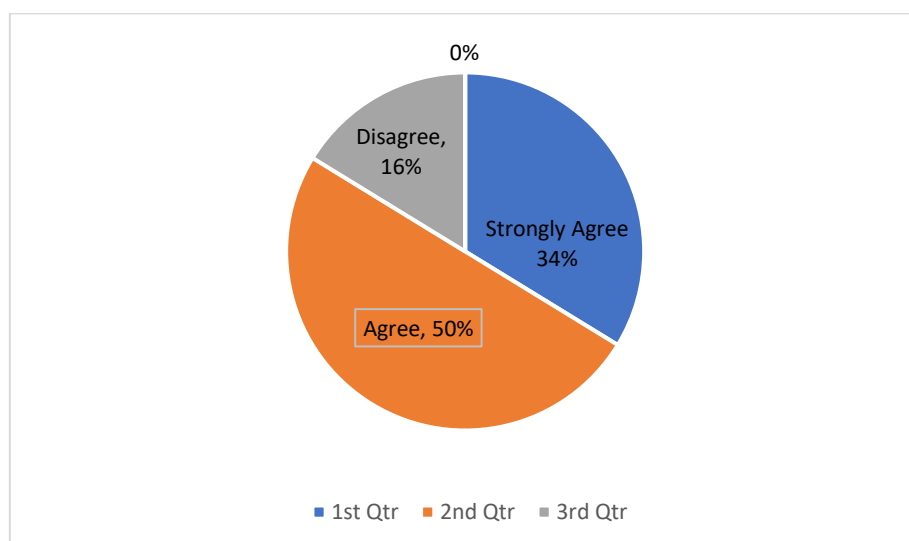
The perspectives of 80 math and science grade 12 students were collected with a questionnaire. The responses were measured using a Likert scale to assess perspectives of students regarding the teaching mathematics. The distribution of these responses is summarized in Table 1 as below.

**Table 1**

*Number of responses of the participants in different categories*

| S.N. | Statements                                                                                             | Strongly agree | Agree | Disagree | Strongly Disagree |
|------|--------------------------------------------------------------------------------------------------------|----------------|-------|----------|-------------------|
| 1.   | I feel my mathematics classes interesting.                                                             | 27             | 40    | 13       | 0                 |
| 2.   | Continue mathematics in university level is good.                                                      | 20             | 33    | 14       | 13                |
| 3.   | Teaching is a good profession in Nepalese context.                                                     | 14             | 44    | 18       | 4                 |
| 4.   | Teachers are happy and respected in society.                                                           | 37             | 38    | 2        | 3                 |
| 5.   | Teachers can earn to fulfill the basic requirements of family.                                         | 20             | 42    | 15       | 3                 |
| 6.   | Teaching mathematics is easy and interesting.                                                          | 8              | 42    | 20       | 10                |
| 7.   | Most of the students of science and mathematics background in grade 12 want to be a teacher in future. | 3              | 15    | 47       | 15                |
| 8.   | My Parents expect to see me as a teacher in future                                                     | 3              | 10    | 41       | 26                |
| 9.   | In which profession/field are you interested in future?                                                |                |       |          |                   |

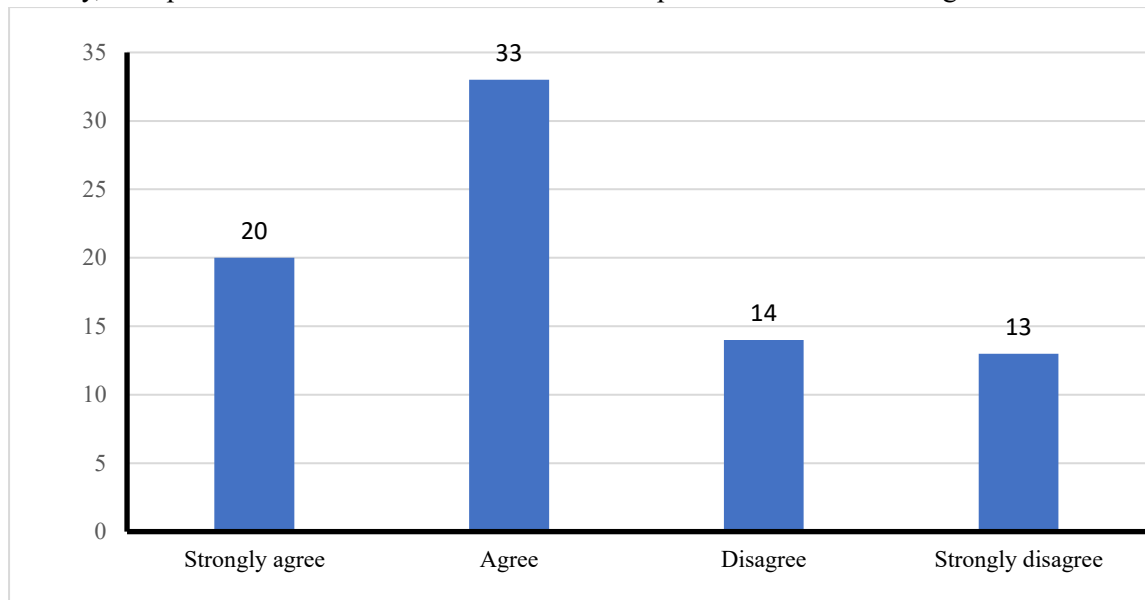
We have presented the above data in the following pictures and described the pictures based on high and low degree of agreement of the students on a certain statement:



**Figure 1**

*I feel my Mathematics class interesting*

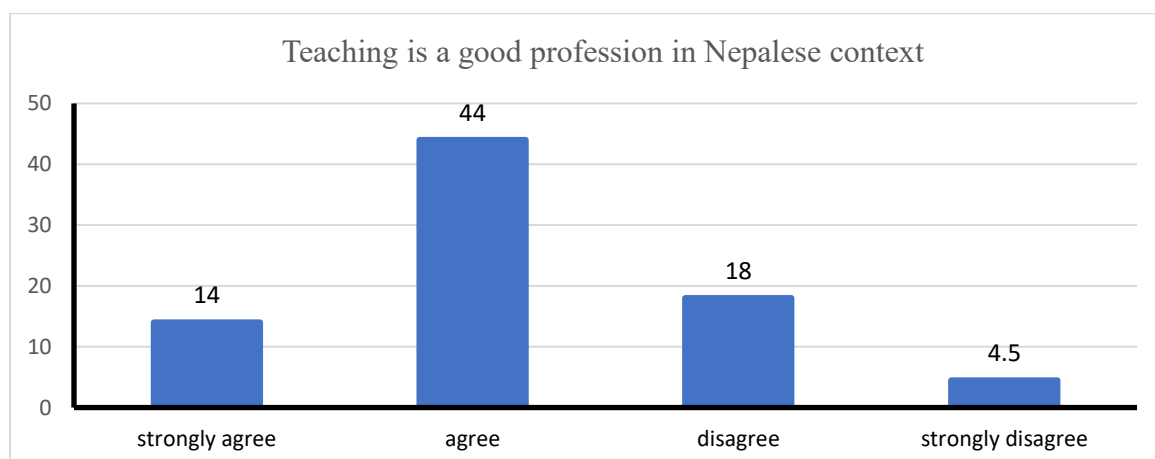
The above pictorial representation indicates that around one third of the participants are feeling mathematics classes more interesting and half of the students are feeling their mathematics classes interesting. Also 16% of the participants are not considering their mathematics classes interesting. Similarly, the opinions of students on statement 2 can be presented as below in Figure 2:



**Figure 2**

*Continue Mathematics in university level is good*

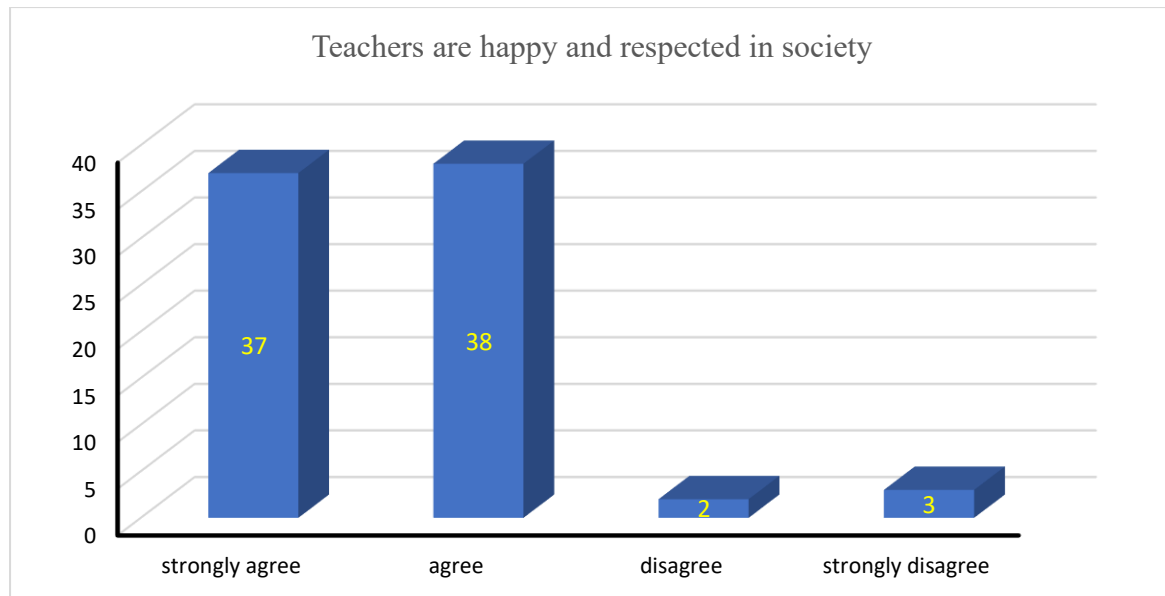
Regarding the second statement 'continue mathematics in university level is good', 33 students were agreed, 20 were strongly agree and remaining were disagree. It indicates that most of the students are positive towards continuing mathematics study up to university level. Their opinions show the importance of mathematics in daily life and other discipline and continuing mathematics up to university level is good. In the same way, the responses of the students on statement 3 can be presented in Figure 3:



**Figure 3**

*Teaching is a good profession in Nepalese Context.*

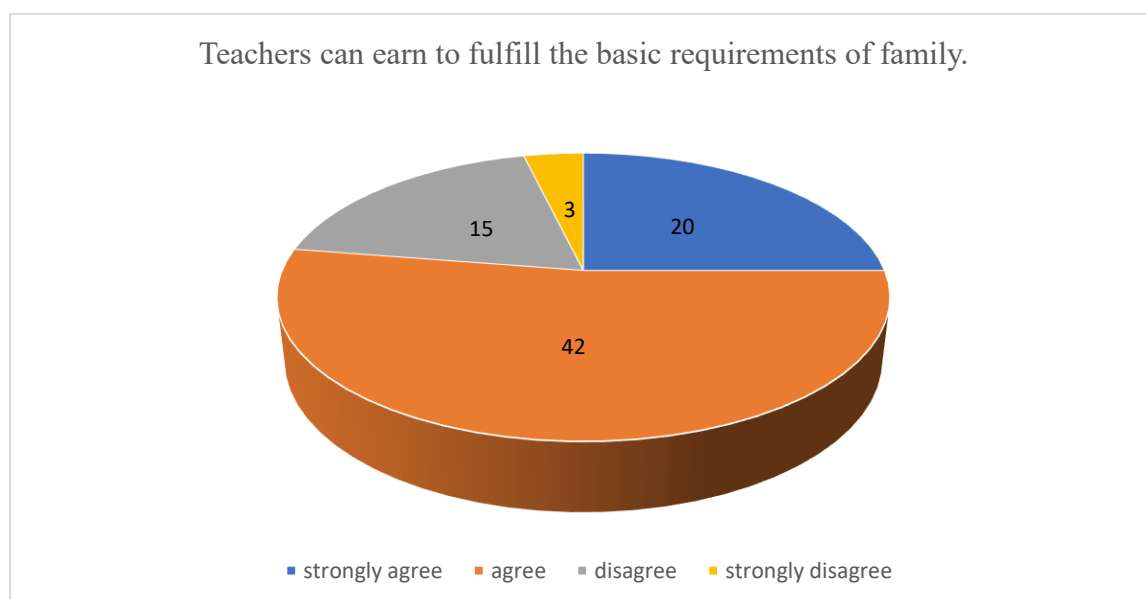
The line graph of the opinions of the students on statement 3 ‘teaching is a good profession in Nepalese context’ indicates the high level of agreement. Most of the students agree that teaching is a good profession; however 27.5% of the students accepted teaching is not a good profession in the context of Nepal. The numerical responses regarding statement 4 can be shown as:



**Figure 4**

*Teachers are happy and respected in society*

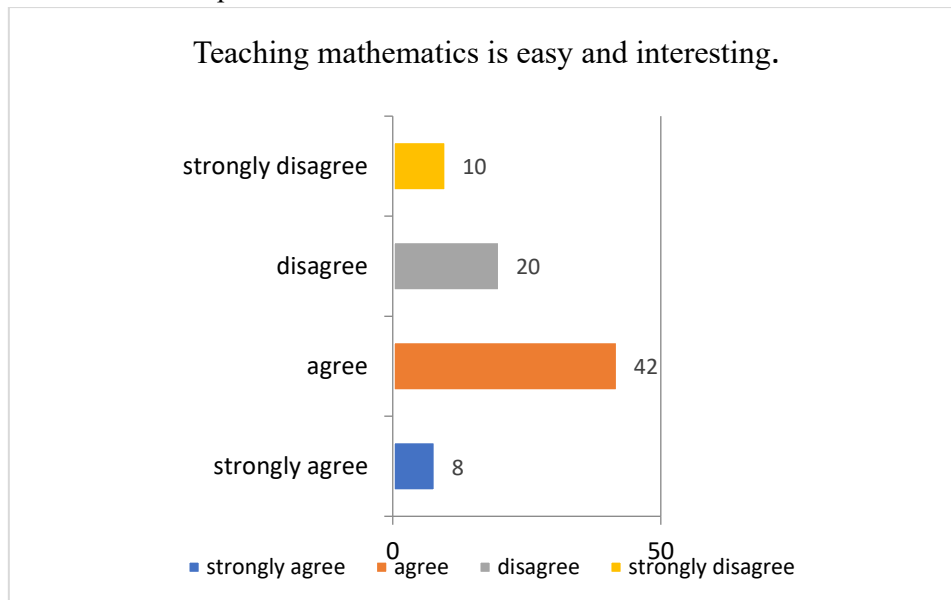
The above graph shows the high level of agreement of the participants on the statement ‘teachers are happy and respected in society’. It means that most of the students perceive teaching is respected profession and teachers are happy in society and their profession. We can also express the numerical opinions of the students on statement 5 on 3-D pie chart as below:



**Figure 5**

*Teachers can earn to fulfill the basic requirements of family*

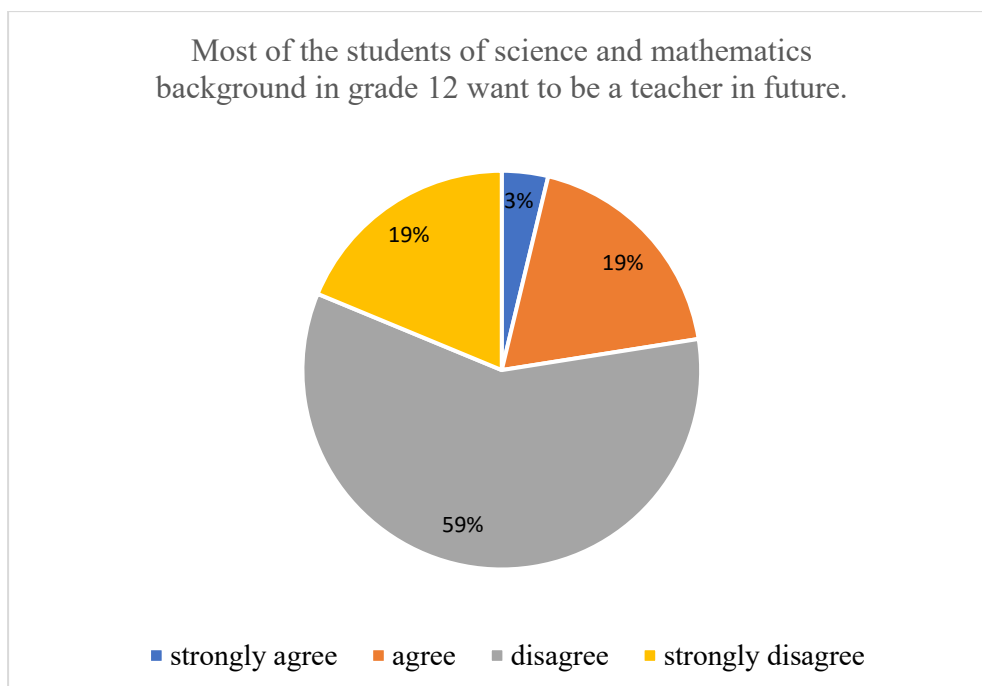
The above graph denotes the high number of students (62 out of 80) think that teachers can earn to fulfil the basic needs of family and it is not difficult to bear family responsibilities by being a teacher in the context of Nepal. Altogether 18 students disagree on the income of teachers and they think that it is difficult to fulfill the basic need of family by being a teacher. The below graph represents the number of responses on statement 6:



**Figure 6**

*Teaching mathematics is easy and interesting*

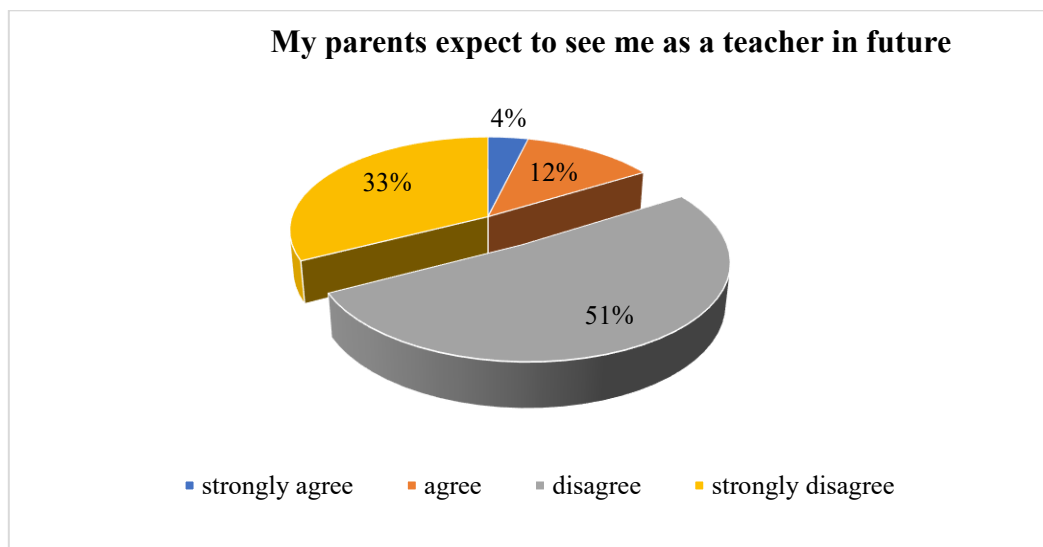
More than half of the students (50 out of 80 students) view that mathematics teaching is easy and interesting. The above It conveys the positive perspective of the students towards teaching mathematics as a profession, however 22.5% perceived teaching mathematics is not easy and interesting job. The numerical responses of statement 7 can be represented as:



**Figure 7**

*Most of the students of science and mathematics background in grade 12 want to be a teacher in future*

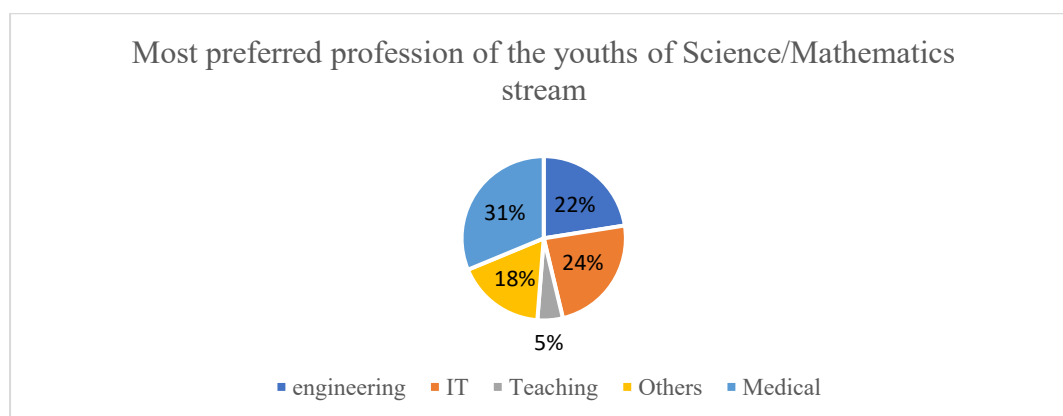
The above pie chart indicates that most of the students (78%) of science and mathematics background in grade 12 do not want to be a teacher in the future. It is one of the major issues for quality in education. Since the high scorers do not want to be a teacher, there will be a lack of efficient Science and Mathematics teachers in the future. The stakeholders should pay attention towards this issue. The opinions of the students on the last statement can be describes as below:

**Figure 8**

*My Parents expect to see me as a teacher in future*

From the above data, it can be concluded that more than 80% parents do not want to see their children as a teacher in the future. Only 16% students agreed that their parents want to see them as a teacher. It is the serious case 'Most of the parents do not want to make their children teacher, why?' This issue should be researched and the proper intervention should be applied to encourage the high scorers as well as their parents towards teaching profession.

Regarding the most preferred profession of the students in their future, we had given a question, 'In which profession/field are you interested in future? The responses of the students is explained as below:

**Figure 9**

*Picture of the statement 9 'In which profession/field are you interested in future?'*

The results from the above data indicated that most preferred profession of the students is medical sector. Some of the students were interested in B.Sc. Nursing and others in Pharmacy too. Medical sector represents all these aspects of health sectors. The second preferred profession was IT. Around 25% students were interested in IT. This is also the demand of 21<sup>st</sup> century. Engineering was the third preferred profession of the students who were studying mathematics in grade 12. It includes different sectors of engineering. Only 4 students out of 80 were interested on teaching as their future profession. It's a great challenge for education sector. The other preferred professions were CA, Bank Manager, Business, civil service, forestry, Animation, and British Army. The interesting matter was that only one student wrote the politician as his/her future profession.

Various factors influence on the attitude towards the teaching profession, such as the economic and social status of the family, the profession of the parents, and the influence of friends, as well as the facilities available in the teaching profession. Regarding the perspectives of secondary level students towards teaching profession, Eleje et al. (2022) found the positive attitude of students towards the teaching profession in Nigeria. The researchers also concluded that female students and the students in rural location of the secondary schools in Nigeria had high positive attitude towards the teaching profession, however Egwu, S. O. (2015) argued that students have negative attitude towards teaching profession, that teaching is a difficult task, and teachers are not well paid compared to other professions. On the basis of the findings, it was recommended, among others, that Government should adequately fund education, there should be improvement in teacher's salary and regular payment of salary and parent should encourage their children to study education courses. Bhargava and Pathy (2014) emphasized that teaching being a dynamic activity requires a favorable attitude and certain specific competencies from its practitioners and the teachers' proficiency depends on the attitude towards the profession.

### Conclusion

The study on 'Perspectives of Secondary Level Students in Teaching Mathematics in Nepalese Context' indicates that most of the high scorer students are not interested in Mathematics teaching as their profession, however more than 90% of the students agreed that teachers are happy and respected in society. The study also revealed that more than 80% parents do not want to see their children as a mathematics teachers in future and the learners do not want to choose teaching profession as their career. Only 5% students were interested in teaching. This is a serious issue for stakeholders of education sector to enhance the quality of education. A positive attitude towards teaching profession can bring the desired quality in the education sector by developing sense of duty, professional competence and by giving them an insight of the student's needs and problems. Further study is necessary in this issue to encourage the high scorer students in teaching profession.

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