

Language and Community of Mathematics

Introduction: Education is the mean of social transformation. It helps to bring the expected changes in the behavioral patterns of learners. It not only contributes to character-building but also makes them independent thinkers leading to an effective decision-making process. Language is the core element closely associated with the knowledge factor dealing with the concerned area of study. When it comes to gain, store, and transfer knowledge, language plays a pivotal role in individuals. Language performs various functions in different contexts. The linguistic theory can be used to analyze the mathematical texts in order to promote the interest of learners and comprehend the concepts of mathematics. This article provides valuable insights into the language with specific reference to mathematics as an area of study.

Relationship Between Language & Mathematics:

The language has a significant relationship with various academic genres. Language is a systematic and scientific process to exchange thoughts, emotions, and symbols. There are various components to describe the linguistic forms of mathematics like Syntax, Grammar, Vocabulary, Discourse, and Meaning. There is a difference between Mathematical Vocabulary and everyday vocabulary. Children often get confused between these meanings. Usage of the same word but with different meanings within mathematics and outside mathematics. Example: -Face, shape, place, limits, root etc. such example indicate that the Mathematics vocabulary is different from Everyday vocabulary.

The grammar of mathematics is stated in the forms of independent clauses such as greater than, lesser than or equal to. The tradition of sentence construction is followed to write from left to right. Being a part of the mathematical discourse, formal and informal styles are used. They are preferred to describe in the 'first-person plural form.

It is observed that the students tend to use the active voice more than the passive voice. Here, one should note that poor listening leads to poor understanding. Hence, the native speakers learn mathematics in their native language more effectively than that of any other target language. For example, if your mother tongue is English and you learn mathematics in English then it will be a comparatively easy task. However, many times students' native language is Hindi or Spanish, when they learn mathematics in English, it becomes difficult for them to understand the subject matter and explain it. These implications work as an important tool in the mathematical structure.

The logical conjunctions like AND, IF-Then precede by quantifier like FOR ALL. It is observed that both existential and universal quantifiers are used in the place of each other which leads to confusion. The use of 'any' is worth mentioning in this regard. For example, Can anyone solve this mathematical problem? (existential) or anyone can solve it (universal quantifier). Hence, it is better to use these quantifiers accurately.

Mathematical Symbols:

To Understand the means of mathematics we should know about mathematical symbols and make connections between text and symbols. There are a number of signs and symbols used while teaching and learning mathematical concepts. Some of the notable terms are mentioned below:

- Equal Sign ($=$)
- Ohm Sign (Ω)
- Not Equal to (\neq)
- Addition ($+$)

Example: -when we write $3+2$ it means to add two to three. the pattern of speaking the number statement is different from its symbolic representation.

Reading Mathematics:

Some experts assert that reading skills matter while teaching and learning mathematics. It is so because it has a lot to do with the interpretation of the subject matter. 'The transactional theory of reading' can work well to connect the dots. It is effective for skill-gap analysis as well. The students should be trained on using the existing knowledge to link with new concepts based on strong logic and reasoning abilities. They can develop three types of connections: Text-to-self, Text-to-text, and Text-to-World. All of these are possible through model exercises and appropriate guidance.

Mathematics is learned best when the learners are proactive and regular interactions take place between the knowledge provider and knowledge gainer. The term 'Literacy Club' is

developed to provide an experiential learning platform and simplify the content which can meet the predefined requirements from time to time. The role of language is more visible when it comes to motivate the target learners and engage them for better performances. The timely interactions, discussions will be appreciated by them and create an effective support system strengthening rapport in the long-term. It will also be a powerful tool to provide concrete feedback coined with identifying the areas of improvement without hurting them. After all, the teacher can create multiple learning opportunities by making effective use of language to develop interest and increase the success ratio with teaching skills. Knowing the target learners better is always helpful in the effective planning and execution of lessons.

Community of Mathematics:

Mathematics can be comprehended in an easy way through communication in the community of teachers and pupil. by this process they share their ideas and knowledge among their peers. Mathematical Communication is a collection of resources for engaging students in writing and speaking about mathematics. It provides the student with an opportunity to justify their reasoning or formulate a question, leading to gained insights about their thinking and how to solve the problem in Mathematics.

When you become a student of mathematics, you go through four phases of imagination, engagement, alignment, and nature. Here, the journey starts from filling the blanks to working of small short questions and finally solving complex problems with strong logical and reasoning skills. These four phases are the identical faces of the learner of mathematics. The phase of imagination makes your learning experience wider meaning 'mathematics for day-to-day life.' The learner moves to the next phase when he/she thinks mathematics as a career. The last phase is reached when you develop expertise and contribute to the area of study as a researcher, teacher, academician, curriculum developer and so on

Conclusion:

All of the above discussion shows that there is a significant relationship between language and mathematics. Though both areas of study are different from each other. However, they are the two sides of the same coin. Both complement each other. The design and development of technology (software, database management systems) are notable examples of how they work hand-in-hand to perform various functions in less time and better results. Computation has transformed the lives of people by making a balance between the two.