

# Learning Styles of Gifted Students in Mathematics: A Case Practice in Surkhet District

- Chhabi Lal Bohara

## Abstract

*This article investigates the learning styles of gifted students in mathematics. For this study, qualitative approach has been used to focus on the experiences of six-mathematics students' experience studying in secondary level in Surkhet Valley. This article aims to explore the learning styles of gifted students in mathematics and what factors behind adopting in learning. This study utilizes a conceptual framework with seven parameters to check students learning styles in mathematics. For the study, observation, in-depth-interview and document analysis were used to collect the data. This article thus studied six students' voices, three mathematics teacher and a head teachers' voice and experiences to explore learning styles of gifted students in mathematics. In conclusion it was found that the self-study and autonomous, goal oriented learning, TPS, schedule based learning and learning mathematics with use of ICT were the learning styles of gifted students. Teacher, parents and administration had pivotal role to motive, mobilize and move to gain desired giftedness.*

**Key words:** Learning Style, Kinesthetic, Gifted, Auditory, Visual, Think Pair Share (TPS).

## Introduction

No one have the universal meaning of gifted it is a meaning that determined through the relative parameters. Giftedness as a pattern of cognitive, motivational and social variables needed for high achievement in one or more domains (Vlahovic et al, 1999). Thus, giftedness can be understood as a result of several interacting behavior that lead to gifted behavior. Majority of students learned in their ways, so it is an individual reaction to several environmental, emotional, psychological and social factor (Dunn and Dunn, 1992). Sowell et al. (1990) suggest two types of mathematically gifted students. First type they typically enable to work with mathematical problems at a level of difficulty well and another type are enable to solve mathematical problems through employing different thinking procedures (Reed, 2004).

Various people receive data using various senses, but they tend to prefer

differently. In harmony with study goals' the Dunn and Dunn (2002) ranking has been utilized for the attributes of some learning styles for the students and the learning strategy that is suitable for each style, and they are listed below: Learning is "a process that leads to change, which occurs as a result of experience and increases the potential for improved performance and future learning" (Ambrose et al, 2010). Mathematically gifted students are often recognized by their ability to solve complex tasks and engage in mathematical thinking that far exceeds that of their relative age group (Sowell et al. 1990; Reed, 2004).

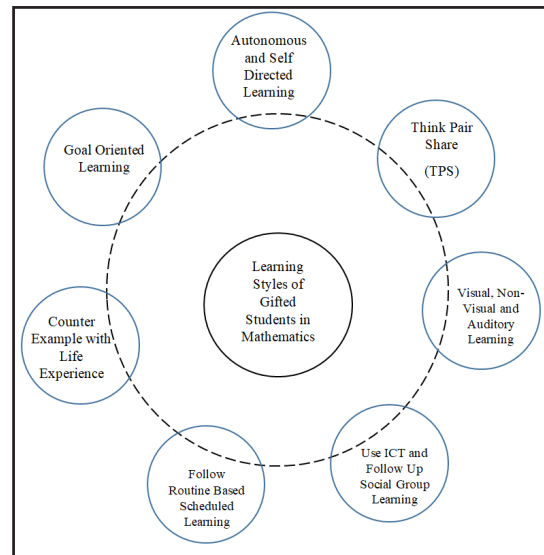
Kolb's learning theory (1984) sets out four distinct learning styles, which are based on a four-stage learning cycle (see above). The four Kolb learning styles that Kolb referred are Diverging, Assimilating, Converging and Accommodating. Mathematics is the building block for everything in our daily

lives, including mobile devices, computers, software, architecture (ancient and modern), art, money, engineering and even sports (Jonathan G., 2021). Negative feeling and negative effect of motivation creates “Big fish little pond effect” (Marsh et al., 2008) perceptions are still prevalent due to “frustrating experiences” while learning mathematics in school (Brochmann 1990, p. 33). Failing in and feeling of mathematics as a difficult subject has created negative image and anxiety, leading to negative attitudes toward mathematics (Belbase 2013; Marchis 2011). The decontextualized teaching learning of mathematics has created a number of myths among people, such as mathematics is just calculation, mathematics is only for clever persons basically males, and mathematics is innate to name a few (Ernest 1996; Sam 1999). Such myths are widespread and most of them are negative and any people seem to afraid of mathematics considering it as a most difficult subject due to prior experience during school days.

The record of Surkhet Profile showed that 10.3 percent of people have passed secondary level in Surkhet. Among them, majority of student have poor in mathematics. The aim of the study was to explore the learning styles of gifted students and investigate factors behind adopting the learning styles in mathematics. This study was limited to case study design and qualitative approach. It was confined to only six talent students in mathematics from three schools in Birendranagar Valley in Surkhet.

Conceptual framework helped the researcher in drawing clear picture of how to conduct research properly. Abstract- active, abstract-reflective and concrete reflective are the learning styles of Kolb's learning theory (1984) and the modification with the context of ICT and circumstance of study site which

are presented in following framework :



Form above framework, there are seven parameters to check the students learning style for mathematics. This framework was designed through the modified situation due to circumstances and the change of technology due to period.

## METHODS AND PROCEDURE

The study was carried out based on qualitative research approach. The case study design was conducted. In this study, the case was learning style of gifted students in mathematics of grade X. To complete this study, the study site was community-based school on Birendranagar Municipality in Surkhet at grade X. Thus this study was focused on exploring the learning style of gifted students in mathematics and related with grade X only.

On the basis of researcher's interest and convenience three schools were chosen purposively from Birendranagar Municipality of Surkhet district such that where two students of grade X from each school were selected whose mathematics score was 80 and above continuously in previous three grades.

Each gifted student's peer, one guardians of gifted students and one mathematics teacher teaching at secondary level from each school was selected for this study. Gifted students was named as respondent 'I', respondent 'II', respondent 'III', respondent 'IV', respondent 'V' and respondent 'VI'.

Data collection helps to the researcher to study and analyze each aspects of the study. The success of the study depends on tools for data collection. Therefore, in- depth interview, documents, anecdotal record and observation will the tools for data collection.

To collect data, first of all the researcher was visited case school (Shree Jana Model Secondary School, Shree Krishna Sanskrit and Sadharan Secondary School and Shree Amar Jyoti Secondary School) and selected case students due to their achievement report from three years. Plan was made where, why and how in- depth interview and class observation was conducted, how was started and end in-depth interview and class observation and what was time duration. After received data from portfolio, interview and observation, data were computerized and noted on diary. Ethically, the researcher was assured privacy, informed consent, voluntary participation, do not harm, confidentiality and anonymity to the participants involved directly and indirectly to the research.

Data analysis is the process of ordering, categorizing, manipulating, and summarizing data to obtain answers to research questions. It is usually the first step taken towards data interpretation (Zettabyte) in 2020). The analysis of data was triangulated through in-depth interview, observation, documents and diary with theoretical theme for the study.

## **Result and Discussion**

### **Introduction of Case Respondents**

Three community schools were case schools, six gifted students were selected

through their mathematical performance and three mathematics teacher, six parents and a head teacher were the respondents for the study. Mr. A, B and C were mathematics teachers.

Respondent I is a girl student studying in grade X in Shree Jana Model Secondary School, Bazar. Her records in school show she was excellent in all subjects and carried first position in her grade. She belonged from medium class family. In her family there were seven members, father, mother one brothers and three sisters. Her father and mother work as farmer. They had land to cultivate crops for their living. Her one brother and two sisters were elder than her. Their house was made of mud and wood. She was a brilliant child since their childhood. In her village people took her as a role model student. She behaved other people well. She said about her "I think people should respect each other. Many people may have different problems. Family members should help and love each other. With the resources we have we should make our life beautiful. There must be continuous effort." From the above saying it can be said that she had positive thinking.

Respondent II is a boy studying in grade X of same school. His school records showed he was an average student. However, he had proved him excellent in mathematics subject. He was from middle class family. His family consists 4 members including father, mother and one elder sister. His father was carpenter. His house had small but neat and beautiful made of rod and concrete. They had earned good social recognition in their society due to the result of sons' mathematical learning skill. As per his father he had not excellent academic background. However, they were satisfied with his previous academic achievements.

Respondent III was girl student

studying in Shree Krishna Sanskrit and Sadharan Secondary School, Itram. She was excellent in mathematics subject. She was from a marginal class family. Her father was died when she was ten. Her mother cared him from his childhood with his younger sister. Being only 3 members in the family they struggled very much. She had a very small cottage type house. During the observation the researcher did not find any facilities in her house needed for a student. She only possessed a roof. She studied in his bed. The people in the society respect his mother. She was a laborious student. She never got first position in his class but his school records showed his consistent academic achievement. Her mother said that she was very much satisfied with his study. She listened radio frequently and saw mobile phone.

Respondent IV was from Thakuri family. He was excellent in mathematics subject in Shree Krishna Sanskrit and Sadharan Secondary School, Itram. His academic background was good. He secured highest marks in most of the subjects. His father worked in Indian Army. His father came once in a year for some time to visit family members. He had 10 family members including him. His family was a joint family. His family members were of traditional type. His father had fulfilled their basic facilities. He had single room with facilities required for a student table, chair, bed, bookcase, etc for study. His mother said that her daughter was not concerned with many things. He studied if she wanted. He had good results yet.

Respondent V was boy and he was a gifted student in Shree Amar Jyoti Secondary School, Neware. His academic background in mathematics was poor till grade six due to poor performance and carelessness. His father was Civil Service provider and mother was teacher. He was migrated from Dailekh

district. His family was nuclear and good economic background. He had study room to study. He changed his learning style and progressed performance in mathematics and other subject after grade six. His parents were busy but gave time to him for his better performance. He said that his ideal person was his mathematics teacher.

Respondent VI was girl and aged of 16 years. She studied in grade X in Shree Amar Jyoti Secondary School, Neware. Her family was middle level. She had first position from grade first. Her family was joint family. She had own learning style in mathematics. Her interested disciple was mathematics. School administration, parents support and mathematics teacher were the motivators for her achievement.

#### **Learning Styles of Case Respondents**

In Nepal achievement ratio of school level students in mathematics subject is very low. Mathematics subject is considered to be the most difficult subject and there is lack of teaching manpower in rural areas. Different students may have the different learning strategy and learning styles. According to the variety of learning styles achievement level may also vary. On the other hand low achiever students may have different learning styles than the high achiever students. And, within the high achiever students there may be variety in learning styles. This study focuses to answer the major question "what is the learning styles of high achiever students & whether the learning styles of high achiever students is same or materially same?" Based on previous scores of the students, 6 students were selected to conduct this study.

The learning style of the students depends on the teaching learning method adopted by the teacher, school environment as well as home environment.

Learning style is a biologically and

developmentally imposed set of personal characteristics that make the same teaching (and learning) methods effective for some and ineffective for others. Indeed, it has been suggested that the ideal classroom would include each of the four processes in the Kolb cycle (Hartman, 1995; McCarthy, 1986). The four stages of mathematical learning described above imply at least four different roles for the teacher of mathematics.

- Allegorization: Teacher is a storyteller.
- Integration: Teacher is a guide and motivator.
- Analysis: Teacher is a source of information.
- Synthesis: Teacher is a coach.

A growing body of research suggests that increased learning gains can be achieved with adult learners when instruction is designed with learning styles in mind. The adoption of any type of new teaching and learning approach has the potential to require a good deal of valuable institution time and energy. In this context, there should be study of individual student's learning style and the outcomes must be reflected in the teaching-learning process to improve their learning. This study is only concentrated to the super learners' learning styles and the dynamics of individual learning process.

### **Students' Response towards Learning Style of Student in Mathematics Learning**

In a question asked by researcher "Are you internally directed to mathematics learning or you are influenced by someone in your mathematics study?" respondent of student's as:

*"I generally wake up at 5 AM and study two hours daily in the morning. I try to make equal focus on all the subjects. I have no big deal with mathematics subject. From the childhood I am curious on the study. I*

*did efforts continuously. I am always first in my classroom. Mathematics was my favorite subject". (Student View)*

*"It is difficult to say how my mind is working but I confidently say that I solve problem fast than others." (Students' View)*

*"I study at home generally 3-5 hours in the evening. After returning home I meet my friends and we play football at nearby society playground. I generally study at night. Sometimes I stay till the midnight exercising my study materials. I wake up late in the morning. In the morning I rarely study except to finish my homework." (Student View)*

*"I myself have decided my learning goals and selected suitable resources, materials and timing of learning mathematics. I practice and practice mathematics until I become confident on the issue." (Student View)*

*"I was not excellent in mathematics since my childhood. In the early school days I was aware that mathematics subject is a fantastic subject and improvement in mathematics subject can be helpful in improving the other subjects. I cannot study regular at home. I need to be fresh after some study. I had improved my mathematics with great effort. From class V I started to use extra materials. I attended tuition classes and exercised much in home. After the hard practice I felt improvement in mathematics. Now I am very much comfortable with the mathematics problems." (Student View)*

*"... I can feel odd if my friends tell me they have worked really very hard before exam and every time and I have not. Then I often have used a lot of time to study before and I used my different learning styles before exam. I have friends that work a lot more than me and I get more better marks" (Students' View)*

The answer the researcher got shows that case students are autonomous and self-directed. They are motivated internally for the mathematics study. Influence of other persons is less important for them for their high achievement in mathematics.

The question asked was "Whether you have set your future plan and are you aware of role of mathematics on your set plan?" The answers by case students were:

*"I want to become doctor in the future. I want to know the application of mathematics in the doctor study. If possible, I will have focus on the important mathematical chapters."* (Student View)

From the view of student goal oriented learning is the best to learn mathematics. Goal oriented learning facilitates to focus the content gained process.

*"I want to be a mathematician in the future. My father is a mathematics teacher. I know the value of mathematics. I want to learn in detail everything included in our course book. I want to be a well reputed professor."* (Student View)

*"My seniors and teachers say if we are good at mathematics it helps us for the study of science stream after the SLC. If we study science we can choose various fields in our higher study. So, I want my mathematics study better."* (Student View)

*"I have not set a clear goal for my future. However, mathematics is my favorite subject."* (Student View)

From the answers given by the case students it can be said that gifted students set their future plan in their high school level and they are aware of the role of mathematics in their future plan. And, they want to be prepared and study mathematics relating to their set plan.

During the study the researcher had

asked a question relating to their present goal of mathematics study to the students. The question asked was "What is your present goal which is fulfilled by your high achievements in mathematics subject? And the answers were;

*"I think we should be master in all subjects in the school level. We are making our lives by gaining the fundamental knowledge. So, my goal is to perform well in exam and get confidence in the subject matter."* (Student View)

The answers given by the case students show that the case students have fulfilled some goals set by them in relation to the mathematics study. They are satisfied with their high achievement in mathematics.

During the research the researcher had asked a question with the students "Whether your mathematics study is useful in your daily life works and whether you want to focus in any area of your mathematics study?" The answer was:

*"My mother runs a small glossary shop. I sometimes help her in running the shop. We need to know numeric calculation to ease our transactions. So, I prefer to study arithmetic."* (Student View)

In the course of answering the question only one case student related his mathematics study with his daily work. Other case students could not relate their mathematics study with their daily life workings.

Relating to the answers given by the case students on the matter of bring life experience and knowledge oriented learning the researcher tried to find out the reason for the same from the mathematics teacher. The question asked was "Why the students could not relate their mathematics study with their daily life workings?" The answer was:

*"In this level students rarely have material life experience demanding the*

*teaching learning process to be reactive to their needs of real life and providing feedback and correcting their views. However, Sometimes students ask very practical questions impressively." (Mathematics Teacher View)*

The answer of mathematics teacher indicates the lack of real life working experience of the case students as a reason of their inability to correlate their mathematics study with their daily life working.

It can be concluded from the above discussion that high school level students rarely use 'bring life experience and knowledge oriented learning'. The situation has come because of lack of real life working experiences.

The researcher had asked a question relating to the intra personal learning style to the case students. The question asked was "Are you a lone mathematics learner?" Only one case student answered positively as:

*"I do writing practice regularly to make my subjects better. I sometimes use extra materials for the study of mathematics subject. My father is a mathematics teacher. Sometimes, he brings extra materials for me and I practice mathematics using extra materials. I never do combined study with my friends. I have never consulted with my teachers except the class time. In need, I take the help of my parents." (Student View)*

From the above analysis and description it can be concluded that very few student use intra personal learning strategy.

The researcher had asked a question regarding the inter-personal learning style of the case students during the course of interview with case students. The question asked was "How often you visit to your friends and teachers for your mathematics study?" The answers were:

*"Most of the time of evening, I perform*

*the homework provided by the teachers in school. I always finish my homework in time. Sometimes I visit my friends to discuss about the study. With friends I discuss about the difficult problems of the course. If the discussion with the friends cannot provide the solution then I sometimes visit my mathematics teacher." (Student View)*

*"I generally study in the evening at home. I rarely study in the morning. Sometimes I stay till the midnight doing home works and revising the previous chapters. However, my study is not regular. I have many friends. Being frank in nature, I can make friends in short time. I frequently visit my friends and we often discuss about the study. In my home, there is no- one to guide. My family members often inspire me to be laborious and hardworking like my father." (Student View)*

From the view of student, routine based scheduled labor and hardworking refine mathematics learning. It sharpens students to learn mathematics. Enforcement and supporting speech of parents motivate them.

The researcher asked that question to student. Then the student replied that when I go to home study mathematics more than other subjects, always gone to school and to do home assignment regularly, tried to solve all my problems of mathematics with different ways, tried to solve mathematics problems through formula and without formulae. For solving those problems, I tried to learn them through goal oriented and deeper for better solution. She said that she used to study tried to solve challenging problems, discuss with friends and solve problem with together and support from the teachers side after failing several tries.

The researcher interviewed to student about which subject do you like most and why? How do you learn mathematics better than other students? The student

replied that he must like mathematics subject because of interesting, funny and critically for better IQ and Graceful. He said that mathematics was better to achieve maximum marks for his score. He said that the teacher had problems to solved unscheduled challenges to do mathematics solution; for that time he tried to help his problem. My mathematics teacher gave me a chance to solve mathematical problem on white board somewhere. When I have any problem, my teacher told me some hints over the call. He used discussing, group work, pair and share each other, problem solving technique mostly. Some time he used blended learning skills.

The researcher asked a question about how student study mathematics. For student to told in details. Student replied the answer for those questions as teacher gave me motivation for depth study, understanding problems, making mathematics problem solving algorithm technique. She said that she used inductive and deductive way to learn mathematics concept, problem and challenges. She told that if she had any confusion to done solution she used Google, YouTube and ICT tools.

The researcher mainly interviewed to student about question how he study mathematics and which mathematics learning style he used for that. Student replied the answer for that question, he usually complete class assignment and home assignment in time. He solved his mathematical problem by using think pair share, critically thinking and problem solving, discussion, use ICT tools etc.

During the study period researcher had interviewed about the question how did you study mathematics and what type of learning style used for the study. He said that his favorite subject was mathematics.

He felt fun, made easier and enjoyed to solve mathematical problems. He used problem solving, blending, goal oriented learning skill, project based works, think pair share technique, collaborate with friends for solving mathematical problems.

From the discussion above, it is to be claimed that autonomous and self-motivational learning, first think knowledge with pair and share in mass, goal oriented learning, learning with making counter example for life situation, routine based scheduled learning and use of ICT are the learning style in mathematics.

### **Teachers View of Students Learning Style in Mathematics Learning**

The researcher tried to confirm the answer of the case respondent with mathematics teacher with a question "Whether he is comfortable with the mathematic learning without the help of teachers and friends?" The answer was:

*"Respondent I and II are my genius students. My ideal students use their different learning styles in mathematics algorithm due to their level of motivation, use of ICT and collaborative activities. Somewhere they support me to face with challenging"*(Mathematics Teacher View)

From the above answer of the mathematics teacher it was confirmed that the case student was using intra personal learning.

A question "What goals the gifted students achieve from their high achievement in mathematics?" was asked by the researcher during the interview with mathematics teacher and the answer was:

*"In my view, Respondent III and IV are my students. Routine based scheduled work and first study (think), second collaborate (pair work), and third share their knowledge with mass are their learning styles. May be parents support and help of teacher and*



*administration they are better than others."* (Mathematics Teacher View)

The mathematics teacher focuses on the student's appreciation by the society and good social life as a cause of great efforts on their mathematics study.

According to teacher reports, high-achieving gifted students tend to (a) pursue mastery and performance –approach goals significantly more often than avoidance goals, and (b) exhibit these pursuits significantly more often than under-achieving gifted students. Gifted under-achieving students, on the other hand, tend to present no relative difference in the types of the achievement goals they pursue (Baldwin & Coleman, 2000).

A question "Whether the gifted students want to relate their mathematics study with their future plan?" was asked to the mathematics teacher during the research. The answer was:

*"Most gifted students have set their goal. Thus, Respondent V and VI have their own goals. First students wants to make a Doctor and another ones goal is to make a professor. It means their goal driven their study as they performed better."* (Mathematics Teacher View)

It was found from the mathematics teacher's version that the students are aware of the role of mathematics in their future plan and they want to study mathematics relating to their future plan. From the above discussion we can conclude that the case respondents are relevancy oriented learners except one.

The head teacher is a pivotal position in the school for policy, administration and social relationship. The researcher interviewed with head teacher for learning style of mathematics learning of gifted student and how he had plan to promote them. The response of the head teacher is given below

as:

*"I teach in this school about 10 years. I am a head teacher from 4 years. There are average student who are middle and poor in mathematics but someone who are gifted. They follows different learning styles as they think more themselves, they follow school rules and regulations, they come school continuously, they participate in their class seriously etc. I think they are great so that I feel glad to their activities. School manages different learning facilitates as library, routine based tiffin, teaching materials, extra classes, parents teacher social beings etc."* [Head Teachers' View]

From the above discussion we can conclude that our case respondents are goal oriented. Even if the students are not in actual real life working other set goals are there and they are after them.

### **Parents Response towards Learning Style in Mathematics Learning**

The role of parents and teachers as motivators, resource providers, monitors, mathematics content advisers, and mathematical learning advisers. On occasion, parents assumed an advocacy role. According to Subotnik et al. (2009) creativity is fundamental to the work of a professional mathematician. In the course of their work, mathematicians find and solve problems that are substantive and challenging. Subotnik et al. (2009) describe the development of ability into competence, expertise, and finally scholarly productivity/artistry and argues that mathematicians need an array of psychosocial skills to be successful in such a highly competitive intellectual arena.

The researcher interviewed with parents of students for the learning environment and students learning style in home. For this the response gave by parents of students were reported as:

*“The researcher first went to the gifted student’s home and had informal conversation with parents. The parents offered tea and while drinking the tea researcher started taking about his daughter’s education. He also expressed happiness on the fact that his daughter was doing well. He said that his daughter always back to home from school in time. He also said that sometimes he would observed what his daughter was doing without seeing her. Due to her daughter being disturb in her study a separate room was made for her. At last he also said that his daughter was praised for helping in small work in the village.” [Parents’ View]*

From above, student believed in better environment for learning in home as well as classroom. The support of parents is the key point supporting to learning student.

*“The researcher went to his house with the gifted student in the evening time seeing the teacher coming her son his mother first said to sit-down and gave to researcher a chair and she also gave him some roasted corn ant tea. The researcher asked the gifted student’s mother about her son in order to complete his work. The mother of the student also said that her son worked hard but she could not teach him because she did not read more. His parents always motivate to learn his/her son. Then the researcher entered the student’s room with permission and he saw time board, drawing figures, whiteboard and well managed room. There are even student from other small classes who do not want to be thought mathematics home assignment and also his friends come to pair/group work.” [Parents’ View]*

From above response, parent is the key factor for facilitating, directing, supporting and motivation for students learning style in mathematics learning situation. The support of parent enforce students to done better.

*“The researcher went to the students home to complete his work and explained the purpose of coming to the parents with general introduction. The researcher asked few question about the student and his mother said that “he never go to tuition classes, every times he meets his friends and sometimes he met his mathematics teacher.” She also said that he did not study to much but always brought first position in the exam. The son spends most of his times on T.V. and mobile. He read morning time then evening.” [Parents’ View]*

From the response above, ICT is the necessary for learning. Social group learning is necessary also. Multimedia and the social media support to take learning style as which the best.

*“When the researcher gone to the home of Savana Malla, her parent was not there. After two hour later he came home from school. Researcher introduced his information and reason to come and interviewed. His daughter was brilliant he said with soft smile and he added his words she had a study room and she followed her scheduled routine morally. She study self, she never belief in tuition class or extra class. Her effort to study through self, using ICT and new technology, follow teachers’ ideas. Deep learning, think pair share, accept challenging questions, goal oriented learning, critically thinking and problem solving techniques she followed. As a teacher he support, motive and forward to lifting her study.” [Parents’ View]*

From the above response, it is concluded that parent suggest to apply more challenge more gain, no pain no gain, critical thinking and problem solving techniques for learning mathematics.

*“My son was not giving time to study. When I saw him he is not studying. He was looking mobile phone or laptop. Maximum*

*time he consume his time to chatting with his friends. But I heard he was brilliant and he scored maximum number in mathematics than others. In my view, he study in middle night. In the time of his study, no one noise and disturbed him; he wished. He study many other reference books rather than book."* [Parents' View]

From the above, more consuming time to study mathematics is nothing. Goal focused and through ICT and social media change the learning style of mathematics. So parents' advise was to use ICT and social networking to goal oriented learning style for mathematics.

*"When researcher gone to students' home and meet with parent, parent welcomed researcher as a guest and say guest is god. She said that her son was study in class X. He was top ranking student and he achieved highest score in mathematics. He was more interested in mathematical knowledge. He wanted to make an engineer, he said. He followed the routine and study content and concept through deep learning."* [Parents' View]

From the above, student portfolio was better to his different learning style. It is concluded that routine based contemporary content learning with making counter example of life situation is better for learning.

During the study, researcher had taken interview with parents of the case students. In a question asked by researcher "Do your children take self-decision on their mathematics study?" the replies were:

*"She always decide whether to study or not. We do not interfere her in her study. She selects the materials she needed and asks for. We are satisfied with her self-decision making level and success in mathematics subject."* (Parent View)

From the above, self and autonomous

decision to study creates genuine idea for learning mathematics. The level of satisfaction increase the level of learning.

*"We never make any pressure to him for his study. All parents become happy with their children's high academic achievement. He decides his learning schedule and sequence. He is average but good in everything. His extra-curricular activities are good. He plays football and interested in other physical games."* (Parent View)

The answers the researcher got shows that the case students decide their schedule for their mathematics study and they need not be guided by their parents.

From the above conceptual criteria and quotes from the words of the case respondents and their parents it can be concluded that all four case respondent students are autonomous and self-directed.

### **Conclusion**

This study had concerned with the learning styles and factors to select those style of the gifted students in mathematics subject. The researcher took interview with case students, parents, math teacher and head teacher and observed 6 mathematics classes. After detailed analysis and interpretation following findings has been drawn from this study; key findings of the study were listed as:

- Gifted students are autonomous and self-directed.
- Gifted students take their daily life decisions themselves.
- Gifted students do not accept interfere from others in their study.
- Only few students use relevancy oriented learning.
- Majority of gifted students set their learning goals and try hard to achieve. Finally, they do achieve their goals.
- In high school level, because of lack of real life experience students cannot relate

their life experience with their learning.

- Most gifted students like to study in-group. They interact with different personalities and co-learners during their learning process.
- Some gifted students learned them by counter examples with life experience.
- Majority of gifted students followed up routine based scheduled and some gifted students took time as casual and they assigned their assign non-routine but they do their assign through their interest and mood of mind.
- Majority of gifted students used ICT tools and social networking for learned mathematics.
- Think first though study and act with pair and share their knowledge to mass or Think Pair Share (TPS) was the fruitful learning style for majority of gifted students.
- Most of the gifted students had the plan to grasped graceful job opportunity as Doctor, Engineer, Pilot, Professor etc. For the job he/she had follow goal oriented learning style for learning mathematics.
- Majority of gifted students not depended on course textbooks, they used practice books, faced challenging problems, follow up social networking projects.

The study focused on how what the learning styles followed by gifted and what key factors the gifted motive to follow those styles. The major factors to follow those learning style which gifted students used were parent's motivation, support and goal of sociocultural values and interpersonal goal of gifted. The study reported that teacher had pivotal role and head teacher had administrative and mobilizer role to motive role to grasped gifted students' choose those styles. Thus, the nature of mathematics, course content and context, motivation and suggestions, role of ICT and career in marked

driven gifted students' learning style in mathematics. This study is only covered the learning style of gifted student in mathematics learning. It is recommended that is there a gender wise difference for learning style of gifted students in mathematics.

#### **Authors' Biography:**

Chhabi Lal Bohara is a M.Phil. Scholars in Mathematics Education in Nepal Open University. He is a faculty member of Mid-West University (MU), Surkhet. Areas of his research interests are ICT in Education, Mathematics Education. For a decade, he has been teaching graduate and undergraduate students. He has published articles in a variety of journals in the field of mathematics education by integrating ICT tools. He is also a member of Council for Mathematics education, Karnali Province, Nepal.

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