Investigation on the Current Situation of Seventh Grade Students in Yunnan Ethnic Areas
Taking WD Minority Middle School in Yunnan, China as an Example

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ABSTRACT
Through the questionnaire survey, the article investigates the status of seventh-grade students in ethnic areas in three dimensions of non-intelligence factors, learning adaptability, learning habits and methods. The survey shows that firstly, the status of students in the dimension of non-intellectual factors is that most students have a certain interest in mathematics learning, but the internal driving force of learning is not strong enough for knowledge. The attitude of learning is not optimistic, but learning self-confidence is good. Secondly, in terms of learning adaptability, students' understanding of teaching content and classroom listening, completion of homework after class, and self-monitoring ability of summary and reflection after learning failure are generally better. However, students are poor in independent thinking ability, reasonable arrangement of study plans and independent management of study time, and execution of learning tasks according to study plans. Most students have difficulty in learning because they have too many subjects to study, cannot reasonably arrange study time, and do not understand teachers' explanations well. This means that students still need to enhance their self-active learning consciousness. Thirdly, the current status of students' learning methods and habit factors are: students' habit of previewing before class and summing up after class is better. Students' classroom listening methods and question examination methods are also worth advocating, but the specific implementation strength needs to be improved. The habit of inquiring information after class is not well developed and needs to be improved. Therefore, in mathematics teaching, it is necessary to pay attention to training students to develop good mathematics learning habits, enhance students' self-management ability, stimulate students' motivation to learn, and enhance learning initiative and autonomy. It is also necessary to consolidate students' mathematics foundation, and pay attention to the guidance of students' mathematics learning methods at the same time.

Keywords: mathematics learning, current situation survey, non-intelligent factors, learning adaptability

I. INTRODUCTION

The Chinese province of Yunnan is home to 26 ethnic minorities, making it the province with the most ethnic minorities in the country. Chuxiong Yi Autonomous Prefecture is a Yi Autonomous Prefecture in Yunnan Province. The prefecture inhabits 26 ethnic groups including Yi, Miao, Lisu, Hani, Dai and Han, with a minority population of 837,600, accounting for 32.62% of the total population. [1] This article takes seventh grade students from WD Minority Middle School in Chuxiong, Yunnan, China as the survey object, and investigates the mathematics learning status of seventh grade students from three dimensions: non-intelligence factors, learning adaptability, learning methods and habits. The research has a certain positive role in promoting the quality of education and teaching in ethnic areas, narrowing the gap in mathematics education among regions, and promoting the improvement of the quality of mathematics education in ethnic areas and the balanced development of compulsory education.

II. RESEARCH DESIGN

A. Research content and purpose

By investigating the status of seventh grade students in Yunnan ethnic areas of China in the three dimensions

of non-intelligence factors, learning adaptability and learning habits and methods, it is to understand the problems in the mathematics learning of seventh grade students in Yunnan ethnic areas of China, and put forward corresponding mathematics teaching suggestions to provide certain references and guidance for effectively improving the teaching and learning of mathematics in ethnic areas.

B. Subject selection

271 seventh grade students from WD Minority Middle School in Chuxiongzhou, Yunnan, China were selected as subjects, including students from 7 ethnic groups including Yi, Han, Lisu, Dai, Miao, Bai, Hani, among which Yi students accounted for 47.2%, and other minority students accounted for 21.8%, and Han students accounted for 30.3%.

C. Research methods and tools

The research used a questionnaire survey. The survey tool "Mathematics Learning Questionnaire" was compiled with reference to relevant questionnaires by Li Jinfu and Huang Yijun [2], [3]. The questionnaire was tested and revised many times after soliciting expert approval and review by front-line teachers in the middle school. Finally, 24 questions were selected, 1 of which was multiple-choice, and the rest were single-choice questions. The questionnaire involves three dimensions: non-intelligence factors, learning adaptability, and learning methods and habits.

D. Reliability and validity of the questionnaire

The survey sent 271 questionnaires and withdrawn 271 questionnaires. The reliability and validity of the recovered questionnaire were tested with SPSS20.0. The reliability coefficient of the α of the questionnaire was 0.975 after analysis. The factor analysis method was used to measure the validity structure, and the KMO values of the questionnaire were 0.970, indicating that the test has good reliability and validity, thus ensuring the reliability of the research.

III. SURVEY RESULTS AND ANALYSIS

In this paper, Excel 2003 and education statistical software SPSS 20.0 are used to analyze and process the data. [4] The coding method of the survey results is: for the multiple choice questions, specific numeric coding options are used, A-1, B-2, C-3, D-4, E-5. The multiple choice questions are arranged from negative to positive, with hierarchical and sequential characteristics, and are assigned 1, 2, 3, and 4, respectively. For multiple-choice questions, a binary variable method is used to give each option a code, and each option is either selected or not selected. When the value is marked, 1 is used to indicate that the option is selected, and 0 indicates that the option is not selected.

A. The dimension of non-intellectual factors

The dimension of non-intelligence factors involves four aspects: mathematics learning motivation, mathematics learning interest, learning attitude, and learning confidence.

1) Learning motivation: Learning motivation is one of the important factors affecting mathematics learning, which directly affects the students' learning level and effect.

TABLE I.   LEARNING MOTIVATION STATISTICS

Learning motivation	Frequency	Percent	Valid Percent	Cumulative Percent
Have to study because of further education	60	22.1	22.1	22.1
Students' affirmation and enhancement of the sense of achievement	33	12.2	12.2	34.3
Teachers' praise or parents' award	29	10.7	10.7	45.0
Like math and willing to challenge	149	55.0	55.0	100.0

"Table I" shows that 55% of students study mathematics out of their own interests and hobbies, while 22.9% students' mathematics learning is stimulated by external objective conditions, such as teacher praise, parental rewards, and classmates' affirmation; 22.1% of students are in a passive state; most students are not very purposeful about mathematics learning, and their motivation for mathematics learning is unclear, which brings great obstacles to the teaching and learning of mathematics.

2) Learning interest: It is shown as follows. It can be seen from "Table II": 65.7% of students have no habit of learning in extracurricular activities, and are keen on other recreational activities. Only 11.4% of students will summarize themselves, and 13.3% and 8.9% of students take time to review old classes and preview new classes. About classroom activities, 84.5% of students will actively cooperate with teachers and classmates, but 15.2% of students are not active in mathematics classroom activities. In terms of interest in mathematics learning, 40.6% of students are very interested in mathematics, 42.8% are not interested in mathematics, and 16.6% are not interested in mathematics learning.

TABLE II.   LEARNING INTEREST STATISTICS

Learning interest		Frequency	Percent	Valid Percent	Cumulative Percent
Extracurricular learning interest	Entertainment	178	65.7	66.2	66.2
	Review the old lessons	36	13.3	13.4	79.6
	Conclude and summarize	31	11.4	11.5	91.1
	preview the new curriculum	24	8.9	8.9	100.0
Classroom activities learning interest	Passive participation, coping	11	4.1	4.1	4.1
	Not really like	30	11.1	11.1	15.2
	Listen to the teacher's arrangement, the harvest is not small	131	48.3	48.5	63.7
	Actively participate and cooperate with classmates	98	36.2	36.3	100.0
Mathematics learning interest	No interest	4	1.5	1.5	1.5
	Have been interested in	41	15.1	15.1	16.6
	Little interest in	116	42.8	42.8	59.4
	Full of interest	110	40.6	40.6	100.0

3) Learning attitude: The learning attitude mainly includes the students' learning of mathematics and their attitude towards the examination of mathematics.

TABLE III.   LEARNING ATTITUDE STATISTICS

Learning attitude		Frequency	Percent	Valid Percent	Cumulative Percent
Mathematics learning attitude	It is boring and unwilling to learn	6	2.2	2.2	2.2
	Hot and cold, unstable	93	34.3	34.3	36.5
	Practice and be willing to learn	129	47.6	47.6	84.1
	Very love to learn, willing to learn	43	15.9	15.9	100.0
Test attitude	Comfort themselve as if nothing had happened	21	7.7	7.7	7.7
	Be in a panic before the exam	66	24.4	24.4	32.1
	Take it seriously and be meticulous	159	58.7	58.7	90.8
	Be confident	25	9.2	9.2	100.0

It can be seen from "Table III" that 63.5% of the students are willing to learn mathematics, but 36.5% of the students have an unreasonable learning attitude, lack of enthusiasm, and their personal learning consciousness is not strong. 32.1% of learners have insufficient self-confidence in exams and they dare not agree with their learning ability. However, 67.9% of the learners have good psychological qualities and will take an objective and positive view of the test results. Even if a certain degree of errors occur during the test, they can actively summarize and reflect, learn lessons and improve learning leaks and shortcomings.

4) Learning confidence: It is shown as follows. According to the statistical results in "Table IV", 62% of students have great confidence in learning mathematics well, and about 5.2% of students have low confidence in learning.

TABLE IV.   LEARNING CONFIDENCE STATISTICS

Learning confidence	Frequency	Percent	Valid Percent	Cumulative Percent
No confidence	3	1.1	1.1	1.1
A little confidence but no progress	11	4.1	4.1	5.2
Have confidence but do not know the effect	88	32.5	32.6	37.8
Believe that he will master	168	62.0	62.2	100.0

B. Dimension of learning adaptability

Learning adaptability is mainly investigated and analyzed from the aspects of learning plan and execution, learning adaptability, self-monitoring, learning results, learning difficulties and so on.

1) Learning plan: It can be seen from "Table V" that only 27.3% of the students have plans and

complete on time, 43.9% of the students have plans but the actions are discounted, 17.7% of the students have

plans but basically do not complete, and 11.1% of the students have no plans.

TABLE V.   LEARNING PLAN STATISTICS

	Frequency	Percent	Valid Percent	Cumulative Percent
No plan	30	11.1	11.1	11.1
Have a plan, but basically don't finish it	48	17.7	17.7	28.8
Have a plan, but action is compromised	119	43.9	43.9	72.7
Have a plan, and it can be completed	74	27.3	27.3	100.0

2) Learning adaptability: Learning adaptability mainly includes students' adaptability to teachers' teaching situation and teaching content.

TABLE VI.   LEARNING ADAPTABILITY STATISTICS

Adaptability		Frequency	Percent	Valid Percent	Cumulative Percent
Adaptability on teachers' teaching condition	In order to complete the teaching schedule, the teaching has no plan and the time is not scientific	3	1.1	1.1	1.1
	It focuses on textbook knowledge, but ignores students' actual learning ability	23	8.5	8.5	9.6
	The teaching content and teaching method are both considered, but the teaching arrangement is not strict	30	11.1	11.1	20.7
	Combine the actual situation, design carefully, choose the appropriate teaching method	215	79.3	79.3	100.0
Adaptability of teaching content	Teaching content is not novel, deviating from reality, boring and tasteless	25	9.2	9.3	9.3
	With the teaching material knowledge primarily, often contact with other disciplines	15	5.5	5.6	14.8
	Furtherly deepen and improve on the basis of textbook knowledge	101	37.3	37.4	52.2
	Create a learning situation to combine knowledge with practice	129	47.6	47.8	100.0

TABLE VII.   SELF-MONITORING STATISTICS

Self-monitoring		Frequency	Percent	Valid Percent	Cumulative Percent
Time of listening	Not listen at all	3	1.1	1.1	1.1
	Listen for a minute and do the other things when understand	31	11.4	11.4	12.5
	Listen most of the time and occasionally do something else	146	53.9	53.9	66.4
	Listen to the whole lesson carefully	91	33.6	33.6	100.0
Operation completion	Give up when don't know how to do	13	4.8	4.8	4.8
	Discuss with classmates	115	42.4	42.4	47.2
	Refer to the math materials	43	15.9	15.9	63.1
	Independently accomplish	100	36.9	36.9	100.0
Coping with problem-solving obstacles	Leave a blank for the question that doesn't know	16	5.9	5.9	5.9
	Ask teachers or classmates if can't solve in a few minutes	69	25.5	25.5	31.4
	Look for links between known conditions and required problems	89	32.8	32.8	64.2
	Do it in a different way if the original one doesn't work	97	35.8	35.8	100.0
Master of problem-solving method	Often use own methods	5	1.8	1.8	1.8
	Can apply, but not fully understood	41	15.1	15.1	17.0
	Can master, but the application is not flexible	167	61.6	61.6	78.6
	Can master and apply flexibly	58	21.4	21.4	100.0

It can be seen from "Table VI" that 79.3% of the students can adapt to the teacher's teaching method and affirm the teacher's teaching situation; 84.9% of the students believe that the teacher's teaching content and the reality are combined and they can understand the teaching content. It means that the students have a higher average value in understanding the teacher's teaching plan and teaching content, indicating that the students' learning adaptability is stronger.

3) Self-monitoring: Good self-monitoring ability in mathematics learning mainly refers to the ability of conscious self-regulation and self-monitoring and good reflection. The statistical results in "Table VII" show that the students' self-monitoring ability is good, and most students can effectively use classroom learning time, reasonably respond to classroom learning obstacles, and improve classroom learning efficiency. 52.8% of students can complete their assignments

consciously, independently, or with the help of classmates or teachers. 78.6% of students can actively look for coping methods when coping with problem-solving obstacles, and change the way of thinking to find problem-solving methods. In terms of classroom problem-solving methods, 61.6% of the students can master the classroom content, but the application is not

flexible, and 21.4% of the students can master and apply flexibly.

4) Learning outcome: The learning outcome is the ability of students to self-reflect, summarize and organize the knowledge they have learned, and be able to use the knowledge flexibly to solve practical problems.

TABLE VIII.   LEARNING OUTCOME STATISTICS

Learning outcome		Frequency	Percent	Valid Percent	Cumulative Percent
Attribution of learning failure	Own failure	3	1.1	1.1	1.1
	Did not understand in the class, poor memory and other reasons	65	24.0	24.1	25.2
	No guidance from teachers or parents	1	.4	.4	25.6
	Their usual efforts are not enough, to take this as a lesson	201	74.2	74.4	100.0
Master level after class	Don't even understand the book	8	3.0	3.0	3.0
	Know the knowledge from textbook but don't know how to use	32	11.8	11.8	14.8
	Understand the formula in the book, but can't apply flexibly	159	58.7	58.7	73.4
	Achieve mastery	72	26.6	26.6	100.0

It can be obtained from the statistical results in "Table VIII" that 74.2% of the students can reasonably attribute attribution when they encounter setbacks in mathematics, actively sum up the subjective reasons for learning failures and learn lessons, and adjust improper learning methods in time. 58.7% of the students can master the classroom knowledge but the application is

not flexible, and 26.6% of the students can integrate the knowledge in the classroom.

5) Learning disability: This mainly analyzes students' problems in math learning and their strategies to deal with them.

TABLE IX.   LEARNING DISABILITY STATISTICS

	Frequency	Percent	Valid Percent	Cumulative Percent
Often do not understand some mathematical concepts	165	60.9	60.9	62.0
Often can not memorize the mathematical formula	34	12.5	12.5	74.5
Can't read some graphics, and can't draw some graphics	25	9.2	9.2	83.8
Don't know some mathematical symbols	44	16.2	16.2	100.0

TABLE X.   STATISTICS OF COPING STRATEGIES WHEN FACING WITH UNKNOWN QUESTIONS

	Frequency	Percent	Valid Percent	Cumulative Percent
Don't think he can solve it, so give it up	12	4.4	4.4	4.4
Copy other people's answers	18	6.6	6.7	11.1
Ask a classmate, parent or teacher	179	66.1	66.3	77.4
Ruminate on his own	61	22.5	22.6	100.0

"Table IX" and "Table X" show that the main difficulties for students in learning are: 60.9% of students often do not understand mathematical concepts, and 16.2% of students are unfamiliar with some mathematical symbols. The main difficulty for 62% of students is to study many subjects and the pressure to learn. The main difficulty for 52% of students is not understanding the teacher's explanation. The methods adopted by students to cope with learning difficulties are: 66.1% of students who encounter problems will ask for advice from classmates, parents

or teachers, and 22.5% of students choose to think independently.

C. *Dimension of learning methods and habits*

This is mainly to investigate students' mathematics learning methods and learning habits.

TABLE XI.   METHODS AND HABIT STATISTICS

Methods and habit		Frequency	Percent	Valid Percent	Cumulative Percent
Preview condition before class	Never preview	24	8.9	8.9	8.9
	Flip through the math book	74	27.3	27.3	36.2
	Look at the math formulas in the textbook and recite while reading	99	36.5	36.5	72.7
	Mark important places in math books	74	27.3	27.3	100.0
Summary level after class	There is usually no summary	29	10.7	10.7	10.7
	The teacher always does the summary	27	10.0	10.0	20.7
	Teachers often make summaries, and occasionally let students make summaries	59	21.8	21.8	42.4
	Often let students sum up first, then teachers add	156	57.6	57.6	100.0
Listening methods	Listen to the teacher teach mathematical formulas, theorems and rules and recite them	28	10.3	10.4	10.7
	Listen to the teacher teach math examples, exercises and recite them	19	7.0	7.0	17.8
	Listen to the teacher talk about mathematical formulas, theorems and laws and think about them	114	42.1	42.2	60.0
	Listen to the teacher teach math examples, exercises and think alone	108	39.9	40.0	100.0
Question analysis methods	Every number must be useful	22	8.1	8.1	8.1
	Sometimes the known facts in the questions are useless	24	8.9	8.9	17.0
	The correct answer must be worked out by the numbers in the question	14	5.2	5.2	22.2
	There must be a connection between what is known and what is required	210	77.5	77.8	100.0
Information query	Never look up	63	23.2	23.2	23.2
	Look up after the teacher assigns	28	10.3	10.3	33.6
	Look up when needed	164	60.5	60.5	94.1
	Often look up	16	5.9	5.9	100.0

It can be obtained from the statistical results in "Table XI" that the habits of students to preview before class are generally better, but they still need to be improved. 27.3% of the students will carefully preview, draw doubt points and key points in the textbook. Classroom summary is good, but most cases are summarized by the teacher, and 10.7% of them have no summary at all. 83% of the students can think independently during the course of listening to the lectures, and most of the students can find solutions to the problems according to the known and unknown conditions given by the questions. There is less access to extracurricular information, and only 5.9% of the students can independently access it.

IV.   CONCLUSION

Through the investigation and analysis, the following conclusions are obtained:

The current status of students in the dimension of non-intellectual factors is: most students have some interest in mathematics learning, but the internal driving force of learning is not strong enough for knowledge, and learning attitude is not optimistic, but learning self-confidence is better.

In terms of learning adaptability, students' overall understanding of teaching content and classroom listening, completion of homework after class, and summary and reflective self-monitoring ability after learning failure are generally better. However, students' are poor in the independent thinking ability, reasonable arrangement of study plans and independent management of study time, and execution of learning tasks according to study plans. Most students have difficulty in learning because they have too many subjects to study, cannot reasonably arrange study time, and do not understand teachers' explanations well. This means that students still need to enhance their self-active learning consciousness.

In terms of learning methods and learning habits, the current status of students' learning methods and habit factors is: good habits such as pre-class preparation and after-class summary, but they still need to be cultivated and improved; students' classroom listening methods and question examination methods are also worth promoting. However, the specific implementation efforts need to be strengthened; the habit of inquiring after-school information is not well developed and needs to be improved. [5]

According to the survey conclusion of the seventh grade students' mathematics learning in Yunnan ethnic areas of China, it is necessary to pay attention to training students to develop good mathematics learning habits. It is also necessary to enhance students' self-management ability, motivate students' learning motivation, and enhance learning initiative and autonomy. At the same time, it is should consolidate students' mathematics foundation, and also pay attention to the guidance of students' mathematics learning methods.

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