

CORRELATIONAL RESEARCH BETWEEN LEARNING STYLE AND LEARNING ACTION OF VI GRADE STUDENTS OF GENERAL SCHOOL

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ABSTRACT

The purpose of this study is to study the learning styles and learning action of 6th grade students and to contribute to the future success of students and the effective organization of training for teachers. The survey was conducted directly and online through interviews, observations and questionnaires from 1,026 students from 13 schools in the capital city and local areas. 452 (44.1%) male and 574 (55.9%) female and 744 (72.5%) students from the capital city and 282 (27.5%) local students participated in the survey. The results of the study were processed using SPSS-23 software to analyze the reliability, reliability, and correlation of the survey questions. Statistical processing was performed using the T-test and ANOVA test methods to test outline statistics and averages.

In terms of learning action, students express themselves and mobilize themselves. There were statistically significant differences between the groups that evaluated their collaboration and learning. There were statistically significant differences between group learning, strength assessment, collaborative learning, dependent learning, and independent learning. In terms of gender, female students' learning actions and learning styles were relatively higher than those of male students.

The overall mean of students was the highest ($M = 4.28$) and the least significant ($M = 2.96$) was the statistically significant difference. According to this in the UB and local areas reveals statistically significant differences in the two groups of questionnaires, group study and individual study, and no differences in learning for the other groups. This suggests that sixth-graders study together, but lack the ability to learn independently and learn on their own.

Our survey shows that 99% of students have the confidence and desire to succeed. Therefore, parents and educators need to work together to encourage students to learn, to study learning actions and styles, and to provide methodological advice needed each child.

Keywords: child characteristics, interview, observation and questionnaire, student's specific needs.

INTRODUCTION

Within the framework of the Global Learning Goals (UNESCO), there is a social need to organize scientific learning in accordance with the learning actions and styles of students [10]. Well-known scholars such as N.A. Menchinskaya and Y.K. Babansky considered how students plan and organize their learning actions, including the following actions. These include setting goals and objectives for successful learning, formulating them, setting a sequence of activities to accomplish the objectives, planning the time to do it, doing what is planned on time, and spending time productively. Researchers have always emphasized the importance of planning and organizing students' learning. For example, researchers N.A.

Menchinskaya, Y.K. Babansky, G. Zindovich Vukadinovich, A.V. Usova, T.I. Shamova, N.D. Loshkareva, K.V. Bardin, V.O. Punskey have been researched this method and many works have been written by them. Based on the research and analysis of the works of these researchers, the following activities are planned for students to plan and organize their learning. These include: setting goals and objectives for successful learning, formulating them, setting a sequence of activities to accomplish the objectives, scheduling which tasks to do and when to do them, completing the planned tasks on time, using time efficiently, and mobilizing oneself. including activities such as [5].

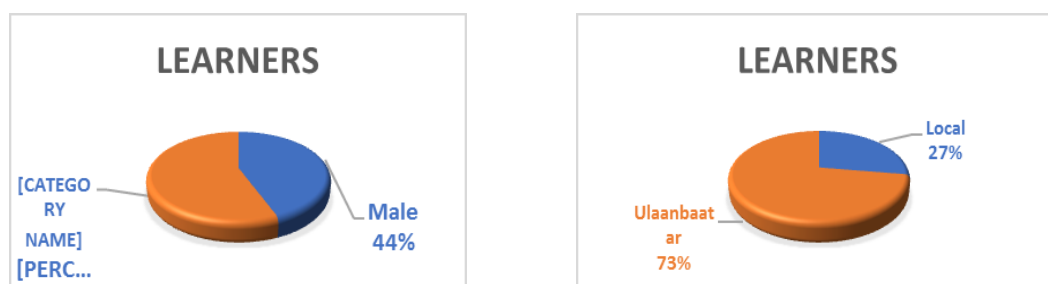
Also, analytical psychologist K. Jung's theory and K. The Myers-Briggs Characterization Methodology, based on and developed by Jung's theory, was developed by D. Kolb (1984), Theory of Learning Styles, and Walter Burke Barbe, an educational psychologist, and his colleagues (VAKⁱ – visual, auditory, and motor learning patterns), Hani and Mamford learning styles, Neil D. Fleming and Colein E. Mills (VARKⁱⁱ - see, hear, read / write, kinetics) methodology for characterization, Felder and Silverman (1988) comprehensive Index of Learning Styles (ILS)ⁱⁱⁱ such as theories, concepts, and methodologies that are widely used in world education [10]. International scholars say that "learners with multiple learning styles learn better" [2] [5] [10]. *"many types of learning are predominant, including vision, hearing, and kinesthetic sensations VAKT^{iv} (that is, to see, hear, do, and receive"*[11].

METHODOLOGY

At a time when there is a lack of professional and research skills from teachers, it is important to determine the type of learning from a scientific point of view, and the goal is to clarify the learning style of sixth grade students.

For this purpose, based on a study of 36 questionnaires in 8 groups of learning styles developed by Seo Kyung Kim (2018)^v, 45 questionnaires in 9 groups were adapted to the needs of Mongolian children, and 19 questionnaires to determine the specifics of learning activities. The survey was conducted directly and online from 1,026 sixth grade students in 13 urban and rural schools. The study was based on a 5-stage lacquer response (1-no, 2-almost no, 3-sometimes, 4-most often, 5-regularly). The results of the study were processed using SPSS-23 software to analyze the reliability of the survey questions, factor analysis and Reliability. Statistical analysis was performed using the T-test and ANOVA test methods to test outline statistics and averages.

Diagram 1. Affiliation and sex of the surveyed students



ⁱ Visual-Auditory-Kinesthetic (VAK) learning styles model - (a pattern of seeing, listening, and learning).

ⁱⁱ VARK stands for Visual, Aural, Read/write, and Kinesthetic sensory modalities. Different learning styles such as visual, auditory, reading / writing, and kinesthetic.

ⁱⁱⁱ The Index of Learning Styles (ILS) - A four-dimensional assessment model of learning style developed by Richard M. Felder and Linda K. Silverman.

^{iv} VAKT Learning Styles are "Visual, Auditory, Kinesthetic and Tactile." -

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All students in the study were different in grade VI and age. For example, 31-year-old students accounted for 31 (3.1%), 11-year-olds for 782 (77.3%), 12-year-olds for 18

Learning Actions

In order to clarify the specifics of students' learning activities, the following results were obtained in the study of 19 contents.

Table 1. Criteria for student learning

Criteria	Average	Standard deviation
1. Getting the information you need from the book you read	3.86	.956
2. Talking to others about the meaning of the book you are reading	3.57	1.154
3. Thinking about the meaning of the book you are reading	3.93	.981
4. Keeping notes of what you read	3.09	1.361
5. Sharing ideas with other people	3.56	1.165
6. Listening carefully to what others have to say	4.36	.851
7. Evaluating the speech of others	3.94	.958
8. Keeping notes of what you heard	3.78	1.025
9. Asking others what interests you	4.16	1.049
10. Suggesting new ideas and solutions	3.62	1.120
11. Explaining the meaning of a new word in your own words	3.47	1.160
12. Applying what you learn in your life	3.77	1.123
13. Self-monitoring of knowledge and skills	3.79	1.029
14. Controlling yourself and correct your mistakes	3.82	1.065
15. Doing the exercises and tasks independently	4.38	.803
16. Helping your friends with their homework	4.01	.970
17. Making your friends help with your homework	3.26	1.075
18. Finding the good in your character	3.88	.966
19. Finding out what's wrong with your behavior	3.76	1.068

The ability to listen attentively to others and to do exercises and assignments independently was high ($M = 4.38$) and ($M = 4.36$) among the students surveyed. However, the survey results show that the ability to help students with their lessons and keep notes of the books they read is relatively weak ($M = 3.09$), ($M = 3.26$).

Learning planning

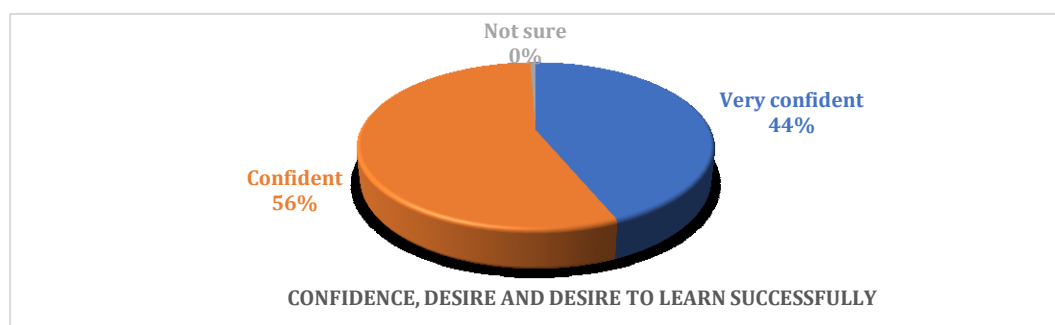
In order to clarify the specifics of planning and organizing students' learning activities, interviews and lesson observations were conducted in 12 subjects. The main feature of the 6th grade is that after graduating from primary school, students move to middle school, where many subjects are studied and many teachers are trained. Therefore, the aim of our research is to find out the general situation of the activities and patterns of planning and organizing the learning of 6th grade students. Therefore, 172 students from 13 schools in Ulaanbaatar, Selenge, Khentii, Tuv aimag centers and 13 soums were surveyed within the content of the interview prepared by our research team.

Diagram 2. Plan of the surveyed students



Fifty-eight percent of the 172 students surveyed did not adequately plan their learning activities to achieve their learning goals. This shows that parents on the one hand and teachers on the other hand paid less attention to students during their primary school years. As a result, students need to be taught to focus on their work and work from the 6th grade onwards, and are at risk of not being able to plan any work, allocate time, use time efficiently, or do their work on time. This may have consequences that may hinder future success. However, 53% of the respondents plan to learn in some way, and 58.2% of them are self-motivated.

Figure 3. Successful learning, confidence and motivation of the surveyed students



Our survey shows that 99% of students have the confidence and desire to succeed. Therefore, parents and educators need to work together to encourage students to learn, to study learning actions and styles, and to provide methodological advice tailored to each child.

Receiving Information

A survey of 9 questionnaires was developed to identify the main sources of information for students of that age. In addition, the reliability of these questionnaires was $\alpha = 0.75$ when the Cranbach alpha was tested, indicating that the question above was statistically feasible for the study.

Table 2. Forms of student information reception

Form of receiving information (Channel)	Gender	Students	Average	Standard deviation	F	p
Can you get the information you need from people's conversations?	Male	452	2.82	0.756	1.697	0.193
	Female	574	2.88	0.712		
	Total	1026	2.85	0.732		
Can you find the information you need in a newspaper or magazine?	Male	452	2.46	0.967	7.921	0.005
	Female	574	2.62	0.88		
	Total	1026	2.55	0.922		
Do you use dictionaries and directories to get the needed information?	Male	452	2.85	0.959	13.013	0
	Female	574	3.06	0.863		
	Total	1026	2.97	0.912		
Do you get the information you need from the Internet?	Male	452	3.03	0.93	1.245	0.265
	Female	574	3.09	0.899		
	Total	1026	3.06	0.913		
Do you get the information you need from TV shows?	Male	452	2.69	0.924	6.141	0.013
	Female	574	2.83	0.887		
	Total	1026	2.77	0.905		
While you observe natural phenomena, could you get the information you need?	Male	452	2.73	0.887	2.738	0.098
	Female	574	2.82	0.878		
	Total	1026	2.78	0.882		
While you observe social phenomena, could you get the information you need?	Male	452	2.53	0.872	4.331	0.038
	Female	574	2.64	0.848		
	Total	1026	2.59	0.86		

Can you get the information you need from your friends?	Male	452	3.02	0.863	6.945	0.009
	Female	574	3.16	0.829		
	Total	1026	3.1	0.847		
Do you have thoughts and desires to find new news and information?	Male	452	3.07	0.858	22.782	0
	Female	574	3.32	0.779		
	Total	1026	3.21	0.823		

* $p < 0.05$

The results of the survey show that the above table shows that the average number of girls receiving information in all content is higher than that of boys. Therefore, there is a need to develop a research methodology to identify the learning characteristics of boys of that age, and to develop methodological recommendations to identify the causes. The reliability of the survey results suggests that the process by which learners receive information is less dependent on human interactions, cyberspace, and the environment.

Learning styles

Factor analysis of the reliability of the survey questions and Reliability analysis showed that the individual study group questions were the most consistent and that Cronbach Alpha ($\alpha = 0.832$) was the most compatible, and Cronbach Alpha ($\alpha = 0.582$). Also for a total of 45 questionnaires was Cronbach Alpha ($\alpha = 0.906$, $p = 0.000$). From this, it can be statistically proven that the question we developed can be used to clarify the learning styles of 6th grade students.

Based on the average of the 9 group learning questions, the dependent learning pattern was the highest ($M = 4.28$) and the solitary learning style was the lowest ($M = 2.96$). However, the following table shows that the collaborative learning style ($M = 4.17$) predominates.

Table 3. Learning styles, averages and standard deviations

Styles	Average	Standard deviation
Sensory learning styles	4.07	0.61
Receptive learning styles	3.96	0.69
Reading and writing learning styles	3.79	0.75
Group work learning styles	4.05	0.87
Individual learning styles	2.96	1.04
Strengthening learning styles	4.04	0.82
Collaborative learning styles	4.17	0.75
Dependent learning styles	4.28	0.63
Independent learning styles	4.10	0.71

These results show that sixth graders lack the skills of individual learning, movement, and reading and writing. Therefore, further independent learning, free expression and participatory training are needed.

The following results were observed in the study of gender differences in students' learning patterns.

Table 4. Results of gender assessment of learning styles

Styles	Gender	Number of students	Average	Standard deviation	F	p
Sensory learning styles	Male	442	4.04	0.61	.015	.903
Receptive learning styles	Female	570	4.09	0.62		
Reading and writing learning styles	Male	442	3.89	0.68	.149	.700
Group work learning styles	Female	570	4.02	0.68		
Individual learning styles	Male	442	3.61	0.76	3.445	.064
Strengthening learning styles	Female	570	3.94	0.71		
Collaborative learning styles	Male	442	3.86	0.93	18.227	.000
Dependent learning styles	Female	570	4.19	0.79		
Independent learning styles	Male	442	2.95	1.05	.426	.514
Sensory learning styles	Female	570	2.97	1.03		
Receptive learning styles	Male	442	3.96	0.88	11.006	.001
Reading and writing learning styles	Female	570	4.10	0.76		
Group work learning styles	Male	442	4.07	0.81	11.069	.001
Individual learning styles	Female	570	4.25	0.70		
Strengthening learning styles	Male	442	4.18	0.67	9.685	.002
Collaborative learning styles	Female	570	4.35	0.59		
Dependent learning styles	Male	442	4.00	0.73	4.563	.033
	Female	570	4.18	0.67		

* $p < 0.05$

The results of this study show that female students outperform male students in all styles. In addition, the highest level of **independent learning** ($M = 4.35$) styles and the lowest level of **individual learning** ($M = 2.97$) styles were observed in the sixth grade students lacked the ability to learn independently. Although there are slight differences between male and female students, **sensory, perceptual, reading, writing, and individual learning styles** are not statistically significant, but however, there were statistically significant differences in the types of *value-based learning, collaborative learning, dependent learning, independent learning, and group learning styles*.

In addition, a study of the differences in the learning styles of the respondents between urban and rural areas revealed the following results.

Table 5. Results of estimating learning styles in UB and local areas

Styles	Gender	Number of students	Average	Standard deviation	F	p
Sensory learning styles	Ulaanbaatar	744	4.10	0.60	2.394	.122
Receptive learning styles	Local	268	3.99	0.65		

Reading and writing learning styles	Ulaanbaatar	744	3.95	0.68	.000	.998
Group work learning styles	Local	268	3.99	0.70		
Individual learning styles	Ulaanbaatar	744	3.78	0.75	.131	.717
Strengthening learning styles	Local	268	3.82	0.76		
Collaborative learning styles	Ulaanbaatar	744	4.06	0.90	5.602	.018
Dependent learning styles	Local	268	4.02	0.79		
Independent learning styles	Ulaanbaatar	744	2.95	1.07	6.880	.009
Sensory learning styles	Local	268	3.01	0.96		
Receptive learning styles	Ulaanbaatar	744	4.04	0.81	.182	.669
Reading and writing learning styles	Local	268	4.03	0.83		
Group work learning styles	Ulaanbaatar	744	4.19	0.76	.996	.318
Individual learning styles	Local	268	4.12	0.75		
Strengthening learning styles	Ulaanbaatar	744	4.30	0.61	2.328	.127
Collaborative learning styles	Local	268	4.19	0.68		
Dependent learning styles	Ulaanbaatar	744	4.10	0.70	.394	.530
	Local	268	4.09	0.72		

* $p < 0.05$

The results of the Ulaanbaatar and local 6th grade students' learning patterns show that there are statistically significant differences between group learning and individual learning, while the other styles do not show all of the statistical significance. However, there was no difference between Ulaanbaatar and rural areas ($M = 4.30$), ($M = 4.19$), and **individual learning ($M = 2.95$) styles, ($M = 3.01$). Sensory and group learning, value-based learning, collaborative learning, dependent learning, and independent learning styles** are more prevalent among Ulaanbaatar students, and local students are more likely to benefit from movement, reading, and writing skills.

Table 6. Estimated results for the gender of Ulaanbaatar students

Styles	Gender	Number of students	Average	Standard deviation	F	p
Sensory learning styles	᠑᠓	305	4.06	0.61	.477	.490
Receptive learning styles	᠑᠓	439	4.12	0.58		
Reading and writing learning styles	᠑᠓	305	3.85	0.68	.244	.622
	᠑᠓	439	4.02	0.67		
Group work learning styles	᠑᠓	305	3.57	0.74	1.321	.251
	᠑᠓	439	3.93	0.71		

Individual learning styles	♀p	305	3.83	0.98	21.328	.000
Strengthening learning styles	♀M	439	4.21	0.80		
Collaborative learning styles	♀p	305	2.93	1.10	2.643	.104
	♀M	439	2.96	1.04		
Dependent learning styles	♀p	305	3.97	0.88	7.621	.006
	♀M	439	4.10	0.76		
Independent learning styles	♀p	305	4.08	0.82	8.196	.004
Sensory learning styles	♀M	439	4.27	0.70		
Receptive learning styles	♀p	305	4.21	0.64	4.760	.029
	♀M	439	4.37	0.57		
Reading and writing learning styles	♀p	305	3.98	0.74	4.450	.035
	♀M	439	4.19	0.66		

* $p < 0.05$

As can be seen from the table above, female students have the advantage of a combination of learning styles. **Dependent learning styles** were the highest ($M = 4.37$) and co-learning patterns ($M = 4.27$) were the same for the sexes. **Individual learning patterns** also have the lowest scores ($M = 2.93$) and ($M = 2.96$). It can also be seen that there is no statistically significant difference in gender between **sensory, perceptual, motor, and reading and writing styles**. For other styles, however, statistically significant differences can be seen.

However, the results of the study on the learning styles of local students showed that there were statistically significant differences between the co-learning and dependent learning styles. The most dependent learning pattern was the highest ($M = 4.28$) and the co-learning style ($M = 4.21$) was the same for the sexes. Individual learning styles also have the lowest scores ($M = 3.00$) and ($M = 3.01$).

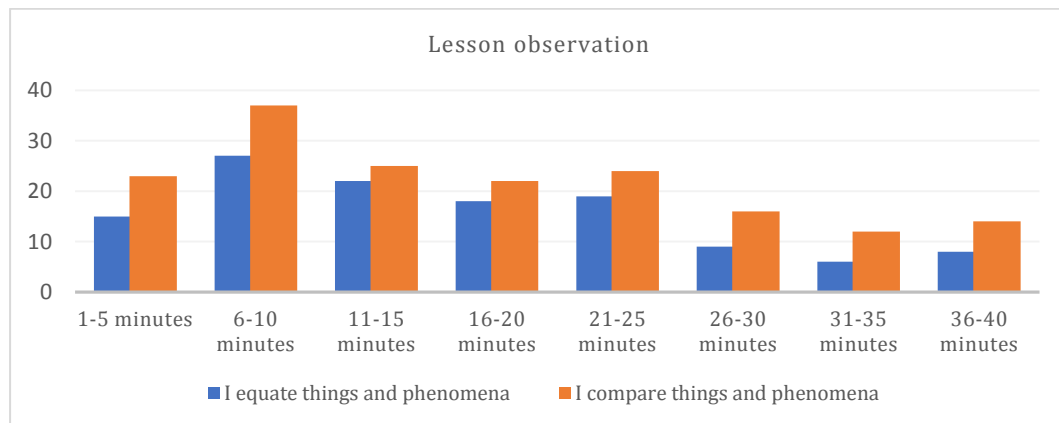
Lesson Observation

The ranking of the overlapping indicators of the mental performance of the 6th grade students surveyed is as follows.

1. Ability to observe	/259.6/
2. Imagination	/225.9/
3. Ability to analyze	/210/
4. Ability to find key features	/198.8/
5. Summarize the information	/181.9/
6. Abstraction	/181.4/
7. Matching	/159.3/
8. Ability to classify and group	/158.4/
9. Ability to compare	/157.1/
10. More thinking	/153.9/
16. Ability to evaluate information	/124.5/

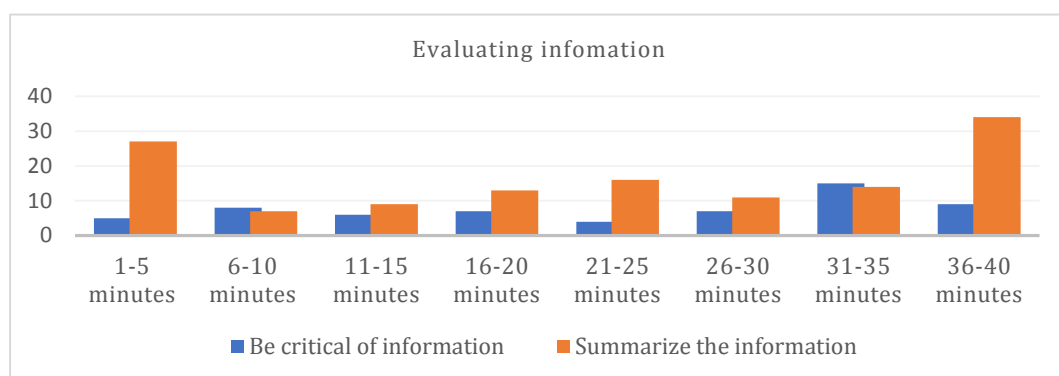
Observational notes show that in order to develop students' ability to observe phenomena, it is necessary to use more learning materials that ensure the smooth functioning of vision, hearing and perception. This is because the observation, comparison, and comparison of students' phenomena are predominant in the beginning of the observation and research lesson, but from the middle of the lesson onwards, the teacher predicts the use of visual aids, textbook assignments, and blackboard writing.

Figure 4. Results of the lesson observation



Teachers asked students to do comparisons rather than matching action. However, the ability to validate these results is limited by the nature of the teacher's activities, the subject, and the subject matter.

Diagram 5. Evaluation of information



Observations show that teachers are more likely to develop students' critical thinking and generalization skills at the end of the lesson. Teachers also asked students to generalize information rather than be critical of information. This is evidenced by the fact that students are less likely to be critical of information, and that students' learning is relatively weak at the end of the lesson.

CONCLUSION

Learning action, learning styles, information retrieval, and other surveys show that girls have a higher average than boys. Therefore, there is a need to develop a research methodology to identify differences in the learning characteristics of boys of that age, and to develop methodological recommendations to identify the causes. The reliability of the survey results suggests that the process by which learners receive information is less dependent on human interactions, cyberspace, and the environment.

According to the results of the learning activity survey, *the ability to listen attentively to others, do exercises and assignments independently* was high ($M = 4.38$) and ($M = 4.36$) among the students who participated in the survey. However, it should be noted that *the ability to help students with their lessons and keep notes of the books they read* is relatively weak ($M = 3.09$), ($M = 3.26$). In addition, these *students' ability to observe, visualize, and analyze is greater than other skills*, as evidenced by the course notes. In the future, teachers need to focus on developing *students' ability to analyze information and think critically*. According to the results of the study of learning styles, *the dependent learning style* was the highest ($M = 4.28$) and *the individual learning style* was the lowest ($M = 2.96$). This shows that 6th graders do their homework and homework on their own, try to find out for themselves when something unfamiliar happens, plan their homework, but do not want to study alone. Therefore, the research shows that they are interested in working together if the opportunity arises.

In terms of student gender, all patterns were equally developed for girls and somewhat different from those for boys, but there were statistically significant differences in self-assessment, *collaborative learning, dependent learning, independent learning, and group learning styles*. It was found that they want to do their homework in groups, together, helping each other, teaching and learning. But even when they work together, they honestly value what they have done, and the teacher sees it and strives to be the best in the class. However, due to the situation, I was able to study alone, but I was not able to learn according to the teacher's instructions and learn independently and creatively. For students, where they studied did not affect their learning style. In other words, the results of the study show that there are statistically significant differences between *group and individual learning styles*, and there are no urban-rural differences between other types. This shows that they are more interested in working in groups than in studying alone. Finally, statistically significant differences can be seen in the fact that local students learn differently from boys in terms of *co-learning and dependent learning styles*. He liked to study with his friends and help each other, but he came to the conclusion that the teacher's instructions were clear and he did what the teacher told him to do. He was not independent and did not develop creative thinking. On the other hand, children in UB differed statistically in many respects, such as *group learning, value-based learning, collaborative learning, independent learning, and independent learning styles*.

One of the factors in achieving the learning objectives is the ability to organize classroom training from a management science perspective by accurately identifying students' learning patterns through detailed research methods, using appropriate teaching methods, and building relationships tailored to each student's specific needs. [10].

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