



Relationship between Learning styles and Intelligence of the High School Chepang students of Nepal

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Abstract

Learning style is significantly correlated with the intelligence of students. There are different types of learning style which impact on the improvement of intelligence as well as achievement of students. The study aims to identify the relationship between the learning styles and intelligence of high school Chepang. The study had adopted the concept of learning style of Fleming's and Multiple Intelligence Theory of Howard Gardner to find the relationship. The study was conducted in Makwanpur, Chitwan, Gorkha and Dhading district of Nepal among the 368 Chepang students of grade 9 and 10. The result found that there was very weak relationship between the learning styles and intelligence of students. There was lack of knowledge and practice of different types of learning styles among the students and teachers were also not fully aware about the concept of learning styles as described by Fleming and types of multiple intelligence as Gardner. Students were also not aware on their own intelligence so which caused the weak relationship between the learning style and intelligence. There is need of specific course to aware the teacher and students about the learning styles and skill to evaluate their own intelligence.

Keywords: Chepang student, Intelligence, Learning styles.

Introduction

Learning styles has direct relationship with intelligence of students. Learning styles differs from one student to another student because of the effect of various environmental, biological, socio-cultural and educational factors. Learning style of private school students may be different with public schools' students, may be different between boys and girls, and may be different in rural and urban schools' students. Similarly, intelligence may be different in student to student because of their different social background.

There are various theories developed to explain the learning styles. The study has adopted the learning style of Neil Fleming to identify the learning style of student. The learning style of Fleming's which consists the Visual, Auditory, Kinesthetic (VAK) model is very common and widely used model¹. Gilakjani and Ahmadi has also stated three types of learning styles are visual, auditory, and kinaesthetic which is used by students to collect the knowledge and information. Every students have their own learning style, some can prefer visual learning, while others can prefer auditory or kinaesthetic learning style. While collecting the information, students use all of their senses and they seem to have preferences in how they learn best. Gilakjani and Ahmadi suggested to teach as many of these preferences as possible and can incorporate these learning styles in their curriculum activities so that student can learn effectively and helpful to chose their own learning style².

Learning is one psychological process which talks about learners' perception towards their phenomena and how they interact with those phenomena will determine the learning intelligence.

There are varieties of senses used by writers to define the intelligence in comparative psychology. According to Father Wasmann; one of the foremost of comparative psychologists, defines intelligence as "the power of conceiving the relation of concepts to one another and of drawing conclusions there from. It involves abstraction, deliberation and self-conscious activity." Intelligence, according to Wasmann, is the God-given attribute of man alone; its possession separates man from brute by an impassable barrier³. Intelligence can determine the personality development of individual. Learning style and intelligence is the base of students which determine their academic achievement and future performance.

Multiple Intelligence Theory was developed by Howard Gardner in 1983. According to Gardner⁴ "students possess different kinds of minds and therefore learn, remember, perform and understand in different ways". According to Gardner the Multiple Intelligences are: Verbal Linguistic, Mathematical Logical, Musical, Visual Spatial, Bodily Kinesthetic, Interpersonal, Naturalistic, and Existential. The study had adopted the types of learning style of Neil Fleming and multiple intelligence of Gardner to identify the relationship between the learning style and multiple intelligence of high school Chepang student of Nepal.

Materials and methods

The study is based on the quantitative research design, conducted in the grade 9 and 10 students of Makwanpur, Chitwan, Gorkha and Dhading district of Nepal. The data was collected from the 368 Chepang students. Chepang are the one ethnic community who are still back from the access of education, health and other development perspective. Nepal government and other organizations are supporting to such community to increase their access on education sector. Structured questionnaire survey was done to collect the response.

The study had adopted the learning style of Neil Fleming and Multiple intelligence of Gardner. The study computed the all eight types of intelligence and made the value of total intelligence to see the relationship between learning style and total intelligence of Chepang student. Linear regression model was run to find the effect of learning style on intelligence of

students and correlations between learning style and intelligence was done on the basis of demographic characteristic of students. The results are presented in tabular form under the result and discussion section.

Results and discussion

Effect of learning style on total level of intelligence: The study has measured the effect of three types of learning styles: Visual, Auditory and Kinesthetic on the intelligence of Chepang student of grade 9 and 10. The result of analysis of variance (ANOVA) shows the significant effect of learning style on intelligence because $P = .000$ which is less than .05 significant level at 95% confidence interval. But the effect is not satisfactory because the value of R^2 is .087 which means that learning styles can explain only 8.7% of the variation in the level of intelligence. The adjusted R^2 value is .079 which means that the learning styles contributed by 7.9% on level of intelligence of Chepang students.

Table-1: Effect of learning style on total level of intelligence.

Model Summary							
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate		
1		.294 ^a	.087	.079	24.24355		
a. Predictors: (Constant), Kinesthetic, Auditory, visual							
ANOVA ^a							
Model		Sum of Squares		Df	Mean Square	F	Sig.
1	Regression	20267.560		3	6755.853	11.494	.000 ^b
	Residual	213940.875		364	587.750		
	Total	234208.435		367			
a. Dependent Variable: Intelligence							
b. Predictors: (Constant), Kinesthetic, Auditory, visual							
Coefficients ^a							
Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	64.114	30.926			2.073	.039
	visual	3.817	1.127	.512		3.387	.001
	Auditory	1.483	1.220	.158		1.216	.225
	Kinesthetic	3.280	1.128	.376		2.909	.004
a. Dependent Variable: Intelligence							

The result of coefficient shows that there is significant effect of visual and Kinesthetic learning style on intelligence whereas there is no effect of auditory learning style on intelligence. From the observation and discussion with students also it was shared that students more preferred visual and kinesthetic learning than the auditory. A visually-dominant learner can learn more effectively through the presentation of pictures, diagrams and charts. Whereas, an auditory-dominant learners are interested in listening to what is being presented in a lecture or group discussion. Similarly, a kinesthetic-dominant learner prefers a physical experience. She likes a "hands-on" approach. Kinesthetic learners can learn more effectively when they touch, play, experiment or feel an object physically.

Relationship between learning and intelligence of student in public school: The study identified the relationship between the learning style and intelligence of student on the basis of types of school. The study had collected data from public and private school of four districts of Nepal. Chepang student of grade 9 and 10 participated in the study and gave their response.

Table-2: Relationship between learning and intelligence of student in public school.

		Learning style	Multiple Intelligence
Learning style	Pearson Correlation	1	-.177*
	Sig. (2-tailed)		.029
	N	151	151
Multiple Intelligence	Pearson Correlation	-.177*	1
	Sig. (2-tailed)	.029	
	N	151	151

*. Correlation is significant at the 0.05 level (2-tailed).

The statistical analysis of Pearson correlation shows that there is significant correlation between learning style and multiple intelligence because $P = .029$ which is less than .05 significant level but there is negative correlation because $r = -.177$. It indicates the negative effect of learning style on multiple intelligence of public school Chepang student. The result indicates that either Chepang students are not familiar with their own learning styles or they have not properly utilized their learning style to increase their level of intelligence.

Relationship between learning and intelligence of student in private school: During the time of field visit, the researcher had visited the private school also to collect the data from high school Chepang students to know their learning style and intelligence. Students were provided the structured questionnaire having with the option of three types of learning styles and different types of intelligence. on the basis of response of students, the statistical analysis of Pearson correlation shows that there is no significant relationship between the learning style and intelligence because $p = .296$

which is greater than .05 significant levels at 95% confidence interval.

Table-3: Relationship between learning and intelligence of student in private school.

		Learning style	Multiple Intelligence
Learning style	Pearson Correlation	1	.071
	Sig. (2-tailed)		.296
	N	217	217
Multiple Intelligence	Pearson Correlation	.071	1
	Sig. (2-tailed)	.296	
	N	217	217

The result indicates that there is no effect of learning style on intelligence of private school students; it means there is no any advantage in intelligence by their current learning style. From the discussion with students during the time of interview, it was noticed that students were not fully aware about the concept of different learning style and various types of intelligence. They were not fully convinced and confirmed about their own learning style. Student should be aware on their own learning styles which can maximize their capacity and it can guide them in right direction to achieve their future carrier as their interest. But in many Nepalese schools, there was traditional method of teaching and learning, i.e. use of lecture method having with the chalk, duster and blackboard.

Relationship between learning and intelligence of male student: The study habit, learning style and intelligence may be different in different gender so the study explored the relationship between the learning style and intelligence of male student. The statistical analysis shows that there is no significant association between learning style and intelligence in male students because the $P = .205$ which is greater than .05 significant levels at 95% confidence interval.

Table-4: Relationship between learning and intelligence of male student.

		Learning style	Multiple Intelligence
Learning style	Pearson Correlation	1	-.099
	Sig. (2-tailed)		.205
	N	166	166
Multiple Intelligence	Pearson Correlation	-.099	1
	Sig. (2-tailed)	.205	
	N	166	166

Various previous literatures have shows the relationship between the learning style and intelligence of students but this study found the just different result than the previous one. The result might be affected because of the lack of knowledge of learning styles and level of intelligence among the teachers and students. Schools must expose and explain about the different learning styles to all students⁵. Montgomery and Groat also suggested that all educational institution should practice all types of learning styles during the classroom teaching so that students can recognize their own learning style and can be benefited in long run from their own learning styles⁶. There are different types of learning styles inventory and Multiple Intelligences Inventory developed by the psychologists and academicians. Hartman states that one student can easily identify learning style from the study and practice of Kolb Learning Style Inventory⁷. While according to Armstrong, one student can be able to detect their own intelligences through Gardner Multiple Intelligences Inventory⁸. These inventories are more popular to identify the learning style and intelligence of students.

Relationship between learning and intelligence of female student: The data presented in the below table No. 5 shows the result of statistical analysis of Pearson Correlation. The result shows that there is no relation between the learning style and multiple intelligence of Chepang female students. Learning styles can directly effect on the intelligence of student but the result found no effect of learning style on intelligence. Intelligence comes either by birth or by learning in day to day life.

Table-5: Relationship between learning and intelligence of female student.

		Learning style	Multiple Intelligence
Learning style	Pearson Correlation	1	.015
	Sig. (2-tailed)		.835
	N	202	202
Multiple Intelligence	Pearson Correlation	.015	1
	Sig. (2-tailed)	.835	
	N	202	202

There are many researchers who are interested to study the individual's learning style and also develop some alternatives to foster the learning habits of student which can be beneficial to increase their achievements in study⁹. Honey and Mumford has highlighted the importance of learning styles. They stated that learning style can play an important role in learning as continues process in learning¹⁰. While Claxton and Murrell also added about the importance of learning style by explaining that the

identification of learning style on student will enhance a better and more effective learning environment¹¹. But learning style depends on the appropriateness on each individual¹². The previous authors also suggested to polished, nutrised and advanced the potentiality of individual through the identification of learning style¹³. Felder also pointed out that when students can identify their own learning style tends to follow the course better so that they can be able to understand their thinking process deeply and clearly¹⁴.

People can enhance their performance by evaluating their own learning capacity and appropriateness of surrounding environment to learn new things. Kolb argued that one will be more successful in any area if s/he knows s/his own strength and lowness¹⁵. Free judgment of own characteristic can be helpful to succeed in life. All these learning environment and intelligence of student can be grown up in school environment with the kind consideration and seriousness of teacher and school management during the teaching and learning.

Conclusion

The study has identified the learning styles and intelligence of high school Chepang student of Nepal whose involvement in education is increasing day by day because of the change in their concept, support from Nepal government and other non-government organizations. The current practice of learning style is dominated by Auditory style but more students, teacher and guardians preferred visual and Kinesthetic learning styles as a more effective learning which can provide the learning skill and long term performance of students. The visualized matter and objectively observed goods can be in memory for long run so that students can easily remember and can understand the issue. The study found that there is effect of learning styles on intelligence of students but effect is very nominal. but on the basis of demographic characteristics of Chepang students, there is no significant correlation between learning styles and intelligence of Chepang high school students. The result is found different than the other previous studies which may be caused of inadequate knowledge of different types of learning styles of Neil Fleming and Multiple intelligence of Gardner. Students were not so aware about the proper implication and benefit of different learning styles.

On the other hand, teachers were also not practicing these learning styles in their teaching method because of the lack of adequate relevant teaching materials and skill to generate such appropriate documents and materials for effective teaching and learning. Both teachers and students were not conceptually and theoretically aware about their own teaching and learning styles and their level of intelligence which may caused the result of this study that there is no relations between the learning style and intelligence on the basis of their demographic characteristics. So, the study felt the need of training and orientation to both teachers and students about the different types of learning styles and its benefit to increase the multiple intelligence.

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