

# Learning Styles and School Adjustments among Secondary School Students

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## Abstract

Learning style is individual's preferred way of processing new information for efficient learning. Students whose learning styles are compatible with the teaching style of a course instructor tend to retain information longer, apply it more effectively, and have more positive post-course attitudes toward the subject than do their counterparts who experience learning/teaching style mismatches. The purpose of this study was to study the relationship of gender and school type in school adjustment as well as learning styles and to explore the effect of learning style in school adjustment. The study was carried out among 200 students selected from government (n=100) school and private school (n=100). The Learning Style Inventory (LSI) and Adjustment Inventory for School Students (AISS) were used to collect the data. The data obtained from survey was analyzed by using group statistics, independent sample test, chi square test and ANOVA. The study found that most of the students both boys and girls had divergent learning styles. The independent t test showed that students from private schools were significantly poor in emotional and educational adjustment than students from government schools. The ANOVA test revealed that effects of learning styles were significant in emotional, social and overall school adjustment but not significant on educational adjustment.

**Keywords:** Learning styles, school adjustment, emotional adjustment, social adjustment, educational adjustment.

## Introduction

Kolb (1984) provides a definition of learning as “the process whereby knowledge is created through the transformation of experience.” In the same way, learning styles as Grasha (1996) defines are "personal qualities that influence a student's ability to obtain information, to interact with peers and therefore the teacher, and otherwise participate in learning experiences". Educators have, for several years, noticed that some students prefer certain methods of learning to quite others. According to Kharb et al. (2013), “The term ‘learning style’ describes an individual’s preferred method of gathering, processing, interpreting, organizing and analyzing information”. People prefer one learning style over another, often maximizing their learning with a blend of two or three learning styles (Sreenidhi & Helena, 2017).

Zhang and Sternberg (2001) state that understanding the “learning styles of students has a wide range of possible applications in education” from classifying the learning preferences of students to detecting potential learning problems at an early stage so as to

settle on the acceptable teaching methods. Many studies of learning styles have been conducted in the fields of higher education. Although the studies classify different learning types and/or styles in several ways, their aims and approaches are similar. Becoming aware of one's learning style preference is empowering and can lead to self-confidence and increased achievement (Puji & Ahmad, 2016). Alignment among personality type, learning style preference, and instructional method could be necessary for ultimate student participation (Phongploenpis & Samart, 2018).

The objectives of the study were to study the relationship of gender and school type in school adjustment, relationship of gender and school type in learning styles and to explore the effect of learning style in school adjustment. Currently, education is progressing from a teacher-centered to a student-centered environment (Mock, 2020; Sreenidhi & Helena, 2017). The need for studying learning styles is highlighted as the need for "a comfortable learning environment (Mock, 2020), which result in effective and efficient knowledge acquisition. When a student is comfortable learning and acquiring knowledge, there is undoubtedly effective learning taking place. Matching learning and teaching styles would provide for an ideal situation in which effective and efficient learning may take place (Duncan & McKeachie, 2010). Much research supports the view that when students' learning preferences match their instructor's teaching styles, student motivation and achievement usually improve (Stitt-Gohdes, 2003). School adjustment problem might arise because of a mismatch between the teacher's teaching style and student's learning styles, which might have negative consequences both on the part of the student and teacher (Jilardidamavandi et al., 2011). Teacher knowledge of student learning styles influences reading comprehension development and individual teaching styles impact learning in the classroom (Bockenkamp, 2019). For this reason, as Stebbins (1995) asserts teachers should know the general learning style profiles of the whole class, which will enable them to organize and employ instructional materials accordingly. Reid (1998) states that developing an understanding of learning environments and styles "will enable students to take control of their learning and to maximize their potential for learning". Other researchers claim that not only can students identify their preferred learning styles, but that students also score higher on tests, have better attitudes, and are more efficient if they are taught in the ways to which they can more easily relate (Dunn & Dunn, 1978). Therefore, it's to the educator's advantage to teach and test students in their preferred styles. Today, teachers who utilize differentiated instruction see themselves as collaborators with their students and are always conscious of learner diversity (Tomlinson, 2017).

The researcher was initiated as a teacher to conduct the research on the effects of learning styles on school adjustment. The researcher found that some students underachieved on particular subjects which created adjustment problems in school. The teachers from other schools also shared with the researcher about the same problems in their schools too. No research has been done to understand the learning styles and its effect on the school adjustment in Nepal. This study aimed to examine the relationship between learning styles and school adjustments among secondary school students.

## Methods

The current study was an exploratory and descriptive with a cross sectional design. It was quantitative in nature. The participants for this study comprised two hundred students among whom 100 were male and 100 were female students. The samples were taken from six different schools (three government and three private) in Kirtipur municipality. The sample was chosen by using convenient sampling method. Students studying in Class 9 and students interested to participate in the study voluntarily were included for the study. The questionnaires were administered in the classroom after consent from the school administration. Emotional adjustment, social adjustment, educational adjustment and school adjustment were dependent variables whereas gender, school type and learning styles were independent variables.

### Data collection tools

For this study the tools used for the data collection were the Kolb's Learning Style Inventory and the Adjustment Inventory for School Students.

### Kolb's Learning Style Inventory

The general information (name, school, class, age and sex) of the participants was recorded. The Learning Style Inventory (LSI), developed by Kolb (1999) which is based on experimental learning was used to determine a student's learning style. The LSI is a twelve item self-description questionnaire (e.g. "when I learn..." and "I learn best when...") followed by four sentence endings (e.g. "...I like to think about ideas" and "...I rely on logical thinking"). The participants were asked to rank the endings for each sentence "according to how well you think each one fits with how you would go about learning something."

Subjects were asked to recall a recent situation where they had learned something new. Recalling a concrete situation was used to require the subject to think of one specific example and not waiver in their decision making. Subjects ranked the sentence endings from "4" for the sentence ending that describes how they learned "best" to "1" for the sentence ending that seems "least" like the way they learned. Subjects were also instructed not to make ties.

The inventory yielded two experiential learning subscores for "abstractness" (i.e. concrete -abstract) and "activeness" (i.e. active - reflective) in learning. Using these scores, a learning style type was determined. The four learning style types are accommodator, diverger, converger, and assimilator. Accommodators are concrete-active (i.e. feeling and doing) learners. Divergers are concrete-reflective (i.e. watching and feeling) learners. Convergers are abstract-active (i.e. doing and thinking) learners and assimilators are abstract-reflective (i.e. thinking and watching) learners.

Independent research by Veres, Sims and Locklear (1991) found that all four learning quadrants showed good internal consistency, and test-retest reliability greatly increased with the randomized scoring format of the most recent form. Of the large number of validity studies, 83.3% showed support for the construct of learning styles and the

inventory. The LSI was used by the permission from Hay group. The LSI was translated into Nepali language with permission.

### Adjustment Inventory for school students

Adjustment Inventory for school students (AISS) developed by Sinha and Sinha (1993) was used to measure school adjustment levels of students. The AISS consisted 60 questions for pertaining educational adjustment (20 questions), social adjustment (20 questions) and emotional adjustment (20 questions). These 60 questions indicating the significant problems of school students in three areas were prepared and only two options 'Yes' or 'No' are provided for the response. Test –retest reliability was found 0.93, and split-half reliability was found 0.95. For assessing validity, item analysis validity coefficients were determined for each item and validity was found to be significant at 0.01 significant level.

### Results and Discussion

The data obtained from survey was analyzed by using group statistics, independent sample test, chi square test and ANOVA.

Table 1. Comparison of baseline characteristics by learning styles

Characteristics	Accommodation	Assimilate	Divergent	Convergent	$\chi^2$	Sig. (p)
<i>Gender n</i>						
Male	25	18	42	15	3.22	.359
Female	22	19	51	8		
<i>School type</i>						
Government	27	18	42	13	2.33	.506
Private	20	19	51	10		

\*p = .05

The study found that the maximum students (46.5%) both male and female learnt through divergent learning styles. Accommodation (23.5%), Assimilation (18.5%) and Convergent (11.5%) learning styles were less preferred respectively by both male and females. Diverging learners (CE/RO) combine what they gain through concrete experience with reflective observation. Diverging learners usually prefer to work in groups. They tend to listen with an open mind, and readily receive personalized feedback. They view things from diverging perspectives. They are sensitive, and prefer to listen rather than do, preferring to gather information and use imagination to solve problems. They are best at viewing concrete situations from several different viewpoints, so they are best at brainstorming or artistic expression. Diverging learners also learn best by apprehension, but they internalize that experience by thinking or reflecting on it (i.e., intention) (Kolb & Kolb, 2005). Therefore, the students with average age of 15 in Nepal are expected and academically rewarded for being less abstract and more concrete. This is inconsistent with Piaget's theory that students develop abstract thinking during adolescence, possibly as a result of environmental (educational) demands.

In previous studies, chi-square analysis showed a significant difference between males and females on learning styles (Belenky et al., 1986). It is the responsibility of the instructor to address this diversity of learning styles and develop appropriate learning approaches, (Wehrwein et al., 2007). Kolb (1984) found that women tend to prefer concrete learning styles, whereas men were more likely to opt for abstract conceptualization modes of learning. Naqvi and Naqvi (2017) found that learning styles and gender were independent for management students both on perceiving (AC-CE) and processing dimension (AE-RO). Females had higher preference for concrete sequential (CS) and abstract random (AR) compared with males. Males had higher preference for concrete random (CR) than females (Lau & Yuen, 2010).

Table 1 revealed that learning styles did not differ by gender,  $\chi^2 (1, N = 200) = 3.220, p > 0.359$ . Both genders prefer the same pattern of learning styles. Conversely, some studies found that the learning style preferences do not significantly differ by sex difference (Demirbas & Demirkan, 2007). In general male and females learn equally well from identical types of visual illustrations when they are used to complement oral instruction (Dwyer, 1971).

The result also revealed that maximum students ( $n = 93$ ) of both government school and private school preferred divergent learning styles and accommodation ( $n = 47$ ); assimilate ( $n = 37$ ) and convergent ( $n = 23$ ) learning styles were preferred respectively by both government and private school students. The chi square test  $\chi^2 (1, N = 200) = 2.33, p > 0.506$  (see table 1) showed that there was no significant difference between school types and learning styles.

Table 2. Comparison of gender in adjustment

Adjustment	Gender	Mean Adjustment	Std. Deviation	T	df	Sig.(2tailed)
Emotional	Male	2.93	1.066	0.791	198	.430
	Female	2.82	0.892			
Social	Male	2.86	0.995	-2.416	198	0.017
	Female	3.20	0.995			
Educational	Male	3.77	1.246	-1.350	198	0.179
	Female	3.98	0.932			
School	Male	3.32	0.920	-0.780	198	0.437
	Female	3.41	0.698			

\*  $P < 0.05$

The results showed that the mean emotional adjustment of male students was 2.93; for female it was 2.82 (see table 2). There was no significant difference in emotional adjustment for male ( $M=2.93$ ,  $SD=1.06$ ) and female ( $M=2.82$ ,  $SD=0.89$ ):  $t (198) = 0.791, p = 0.430$ . Social adjustment of male ( $M=2.86$ ,  $SD=0.995$ ) is significantly different than female ( $M=3.2$ ,  $SD=0.995$ ):  $t (198) = -2.416, p=0.017$ . The results showed that there was no significant difference in educational for male ( $M=3.77$ ,  $SD=1.246$ ) and female ( $M=3.98$ ,  $SD=0.932$ ):  $t (198)=-1.350, p=0.179$ . On the same line, overall school

adjustment was of no significant difference for male ( $M=3.32$ ,  $SD=0.920$ ) and female ( $M=3.41$ ,  $SD=0.698$ ):  $t(198) = -0.780$ ,  $p=0.437$ .

The result was in contrast with the previous studies. Emotional well-being emerged as a dominant concern for Singaporean youths with significant sex differences. Females reported a more positive attitude toward school, better friendship skills, and stronger relationships with parents than did male. However, females registered significantly greater worries about self and emotional distress compared to male (Yeo et al., 2007). Girls experience more emotional distress than boys, including low self-esteem, anxiety, and depression (Rose & Rudolph, 2006). Other studies show that men and women share more emotional similarities than differences.

Regarding the social adjustment and sex differences, the result found that there is significant difference between sex differences and social adjustments. The result obtained to measure sex differences in the level of social adjustment among students has supported the research findings of Vlachou et al. (2011) i.e. the findings show significant difference in the level of social adjustment among male and female students. Among them females tend to have high adjustment problems in social adjustment than those of males. The mean difference in social adjustment among male (2.86) and female (3.20) sample shows the female students with high social adjustment problems than male students. Boys' greater tendency to interact in groups of peers is characterized by high network density and a well-defined dominance hierarchy and to engage in rough-and-tumble play and competitive/organized play (Rose & Rudolph, 2006). The boys are active in sports as well as other extra-curricular activities in schools. They like to hang out with their classmates. On the other hand, the shy nature of girls prevents them to interact with friends and teachers. They are busy in the household works so they have no enough time to engage with their friends. They were less active in sports, other extra-curricular activities and assemblies in school. They lack intimate friends in schools. They prefer to stay alone rather than hang out with their friends. These factors might make poor social adjustments for the girls.

However, there is no statistically significant differences between gender and educational adjustments; the data interpreted the mean educational adjustment of female is slightly higher (3.98) than that of male (3.77). Hence, females are poorly adjusted in education than the males. The hesitation in asking questions when they don't understand, their poor interactions with teachers and friends, their less enough time to engage in study due to household works and their less participation in the classroom activities as well as extra-curricular activities might be the causes of their poor educational adjustments.

Table 3. Comparison of school types in adjustments

Adjustment	School type	Mean Adjustment	Std. Deviation	T	Df	Sig.
Emotional	Government	2.63	0.849	-3.635	198	.000
	Private	3.12	1.047			
Social	Government	3.16	1.022	1.836	198	.068
	Private	2.90	.980			
Educational	Government	3.71	1.209	-2.135	198	.034
	Private	4.04	.963			
School	Government	3.26	.848	-1.832	198	.069
	Private	3.47	.771			

\*  $P < 0.05$ .

An independent-samples t-test was conducted to compare school adjustments in government and private schools. There was significant difference in emotional adjustment for government school ( $M=2.63$ ,  $SD=0.849$ ) and private school ( $M=3.12$ ,  $SD=1.047$ );  $t(198)=-3.635$ ,  $p = 0.000$  and educational adjustment for government school ( $M=3.71$ ,  $SD=1.209$ ) and private school ( $M=4.04$ ,  $SD=.963$ );  $t(198)=-2.135$ ,  $p = 0.034$ . These results suggest that social adjustments and overall school adjustments were not significantly different for government and private schools.

The result revealed that mean emotional adjustment of private school students (3.12) was higher than that of government school students (2.63). This indicates that the students of private schools have significantly emotional adjustment problem than the students of the government school. On the other hand, educational adjustment problems are also found significant among the students from the private schools than the students from the government schools. The mean educational adjustment of private school (4.04) is higher than that of government school (3.71) which indicates that government school students are significantly well adjusted than private school student's education.

The Nepal government provides very useful statutory guidance for making adjustments to teaching, learning and assessment. All teaching staff and teaching assistants should have training and development time to embed this into their practice. The government of Nepal is providing several trainings like teaching methods, demand-based trainings, teacher's professional development, etc. to the teachers of government granted schools which enhance the awareness of teaching methods and learning styles of the students. So, the students of government schools are satisfied with the methods of teaching. They get praised as well as motivated from the trained and professional teachers. These factors are responsible for the well emotional and educational as well as overall school adjustment among government school students. In contrast, the private schools hire less trained and experienced teachers in comparison to the government schools. They do not acquire enough training on teaching methods comparatively. The mismatching teaching methods with learning styles of the students creates dissatisfaction with the study of the teachers. The high competition among private schools in Secondary Education Examination (SEE) exerts psychological pressure on the students. So, they are somehow distressed than the government school students. The private schools are very authoritarian on the discipline.



Students are being scolded even in unnecessary matters, so the students are unsatisfied with their teachers scolding and punishments. They have overload of home assignments too. These factors are responsible for poor emotional, educational and overall school adjustment among private school students. The results illustrate that there is no significant difference between school adjustments and school types. However, the higher mean school adjustment of private schools (3.47) show that the students of private schools are slightly adjusted poorly in school than the students of government school (3.26). The parents' low level of education leads to a lack of motivation to attend school. Lack of interest and parents' negligence are often associated with domestic violence and consumption of alcohol results in a hostile environment, incompatible with safe learning environments which are the family factors for the school adjustment problems (Chirtes, 2010).

Table 4. ANOVA test between learning styles and adjustments

Adjustment	Sum of Squares	Df	Mean Square	F	Sig.
Emotional	7.956	3	2.652	2.826	.040
Social	13.477	3	4.492	4.675	.004
Educational	4.075	3	1.358	1.120	.342
School	6.676	3	2.225	3.471	.017

\*  $P < 0.05$ .

A one-way ANOVA was conducted to compare the difference of learning styles on emotional, social, educational and overall school adjustment. There was significant difference of learning styles on emotional adjustment [ $F(3, 200) = 2.826, p = 0.040$ ], social adjustment [ $F(3, 200) = 4.492, p = 0.004$ ] and overall school adjustment [ $F(3,200) = 3.471, p=0.017$ ] at the  $p < .05$  level. But no significant difference between learning style and educational adjustment [ $F(3,200) = 1.120, p=.342$ ] was found.

Most of the teaching methods in Nepalese schools tend to be auditory (lecture), abstract (intuitive), passive (little opportunity for student feedback) and sequential. The conventional teaching methods does not accommodate all learning styles equally, with divergent, assimilate, accommodation and convergent (Zywno & Waalen, 2002). As stated earlier, such mismatch between the conventional style of teaching and the learning styles of the students can lead to poor student performance, professorial and student frustration, as well as compromised student retention which are responsible for poor emotional and school adjustment.

When an opposing teaching style is used for a student with a particular learning style, the student will seem bored and disinterested. This results in the teacher complaining to the student's parents about the student's limited attention span and lack of concentration. The student in turn reacts in a defensive way. The student refrains from trying to behave, as s/he feels misunderstood and judged. Whatever little knowledge the student was attaining from the teacher is now down to zilch. This leads him/her adjustment problems in school.



### Conclusion

The study concluded that most of the students both boys and girls had divergent learning styles. They perceive through concrete experience (CE) and process by reflective observation (RO). They have the ability to synthesize and/or assimilate various observations for generating new idea (Hsu, 1999). The chi square test showed that learning styles of boys and girls were not significantly different. Most of students were good in overall school adjustment. Maximum numbers of students were well adjusted in emotional and social but poor in educational adjustment. The chi square test revealed learning styles of government school and private school was not statistically significant difference. The independent t test indicated that there is no significant difference in emotional, educational and overall school adjustment among boys and girls. Findings showed significantly difference in social adjustment. But girls were poor in school adjustment as well as social and educational adjustment than boys. The independent t test showed that students from private schools were significantly poor in emotional and educational adjustment than students from government schools. Private school students again were poor in overall school adjustment but were not statistically significant. The ANOVA test revealed that effects of learning styles were significant in emotional, social and overall school adjustment. But not significant on educational adjustment. "Students whose learning styles are compatible with the teaching style of a course instructor tend to retain information longer, apply it more effectively, and have more positive post-course attitudes toward the subject than do their counterparts who experience learning/teaching style mismatches," (Felder, 1993). Thus the findings of the research would be very useful for parents, teachers, school administrators, educationists, curriculum developers, school counselors and psychologists to understand the learning styles and level of school adjustment that contributes in academic achievement. This would help them to plan the effective educational programs in the Nepalese context. However, the extents of these differences need further exploration.

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