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Effect of multiple intelligence on learning style of senior secondary students in relation to gender

*Surbhi Agarwal[1], Prof. Suraksha[2]
[1]*Research Scholar, Department of Education, C.C.S. University, Meerut*
[2]*Department of Education, C.C.S. University, Meerut*
*Corresponding Author: * Surbhi Agarwal*

ABSTRACT: The purpose of the study was to find the learning style of male and female students with reference to their high and low multiple intelligence at senior secondary level. A sample of 250 boys and 250 girls studying in four senior secondary schools of Meerut city was randomly selected. Percentage and significance of percentage were calculated to analyse the data. The findings reveal that males with high multiple intelligence prefer verbal constructive, verbal and reproducing learning styles whereas female students prefer figural reproducing, figural and constructive learning styles. Males with low multiple intelligence prefer figural constructive, verbal constructive, figural and constructive learning styles while females prefer enactive constructive, verbal reproducing, enactive and reproducing learning styles.

Keywords: Multiple intelligence, learning style, senior secondary students, gender

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I. INTRODUCTION

The concept of multiple intelligence was given by Prof. Howard Gardner in 1983.
According to him, intelligence is:
1) The ability to create an effective product or offer a service that is valued in a culture,
2) a set of skills that make it possible for a person to solve problems in life, and
3) the potential for finding or creating solutions for problems, which involves gathering new knowledge.
There are nine dimensions of multiple intelligence according to Howard Gardner.

- Linguistic intelligence
- Logical intelligence
- Bodily- kinesthetic intelligence
- Spatial intelligence
- Musical intelligence
- Naturalistic intelligence
- Interpersonal intelligence
- Intrapersonal intelligence
- Existential intelligence

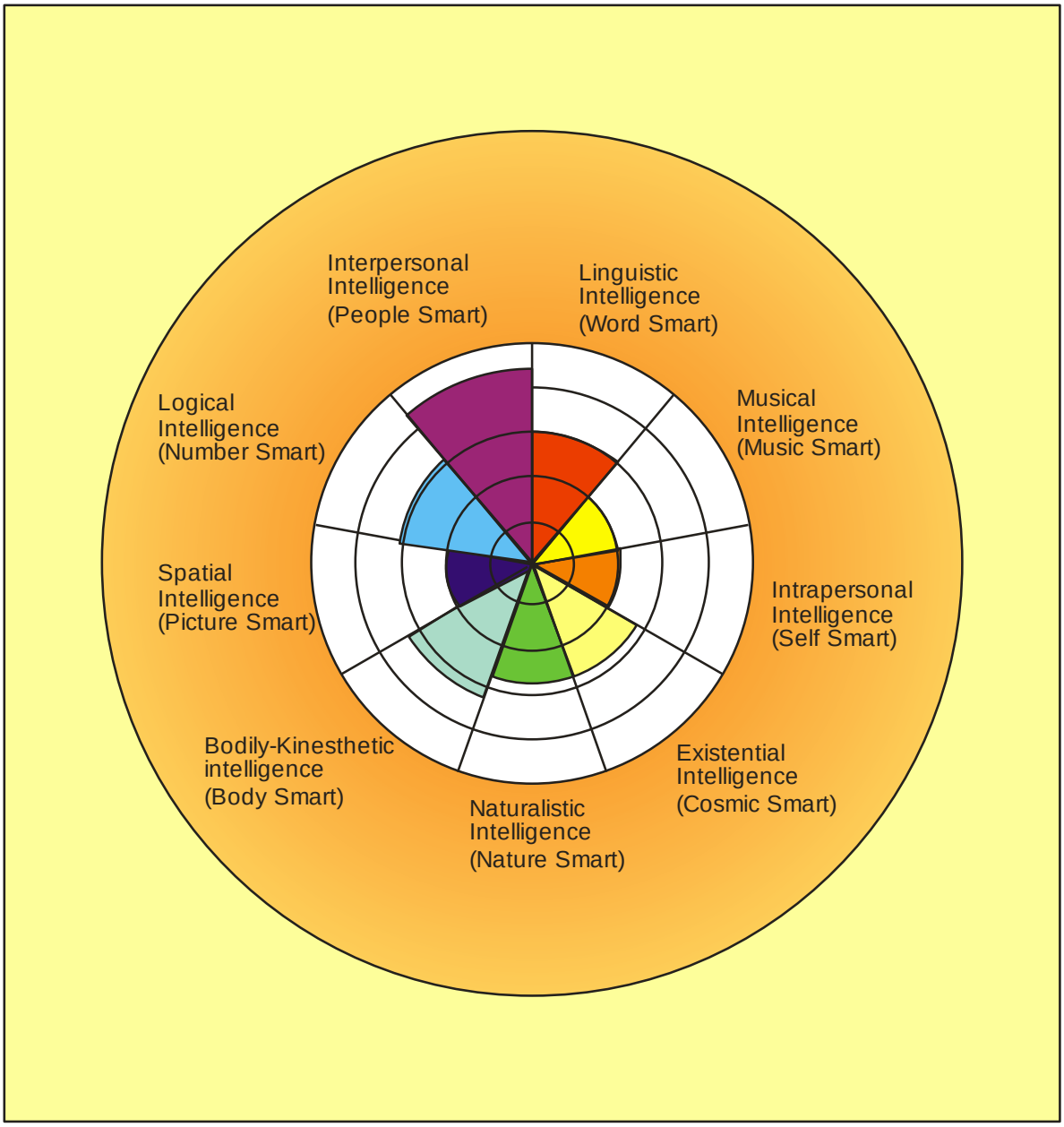

Fig. 1.0 Dimensions of Multiple Intelligence

These intelligences are:

1. **Linguistic intelligence** ("word smart") is the ability to use words and language. It is the ability to think in words rather than pictures. It develops high auditory skills and elegant speaking.

2. Logical-mathematical intelligence ("number/reasoning smart") is the ability to use reason, logic and numbers. It is the ability to think conceptually in logical and numerical patterns making connections between pieces of information. It develops curiosity about the world around, asking lots of questions and liking to do experiments.

3. Spatial intelligence ("picture smart") is the ability to perceive the visual. It is the ability to think in pictures and need to create vivid mental images to retain information. It develops enjoyment looking at maps, charts, pictures, videos, and movies.

4. Bodily-Kinesthetic intelligence ("body smart") is the ability to control body movements and handle objects skillfully. It is the ability to express through movement. It develops a good sense of balance and eye-hand co-ordination. (e.g. ball play, balancing beams). It is the ability to remember and process information through interacting with the space around.

5. Musical intelligence ("music smart") is the ability to produce and appreciate music. It is the ability to think in sounds, rhythms and patterns. It develops immediate response to music either appreciating or criticizing whatever is heard. It develops extremely sensitivity to environmental sounds (e.g. crickets, bells, dripping taps).

6. Interpersonal intelligence ("people smart") is the ability to relate and understand others. It is the ability to see things from other people's point of view in order to understand how they think and feel. It is the ability to use both verbal (e.g. speaking) and non-verbal language (e.g. eye contact, body language) to open communication channels with others. It develops an uncanny ability to sense feelings, intentions and motivations. It develops great organizers, although they sometimes resort to manipulation. It develops to maintain peace in group settings and encourage co-operation.
7. Intrapersonal intelligence ("self smart") is the ability to self-reflect and be aware of one's inner state of being. It is the ability to understand inner feelings, dreams, relationships with others, and strengths and weaknesses.
8. Naturalistic intelligence ("nature smart") is the ability to discriminate among living things as well as sensitivity to other features of the natural world namely clouds, rock configurations, insects, fossils, butterflies, feathers, shells or dinosaurs etc. It is the expertise in the observation, recognition, classification and collection of plants and animals.
9. Existential intelligence ("cosmic smart") is the ability to be sensitive to, or have the capacity for, conceptualizing or tackling deeper or larger questions about human existence, such as the meaning of life, why are we born, why do we die, what is consciousness, or how did we get here. It is called **"wondering smart", "cosmic smart", "spiritually smart" or "metaphysical intelligence"**.

LEARNING STYLE
"Learning style refers to the way one internally represents experiences and recalls or processes information." **Karuna Shankar Misra (2012)**
Eleven learning styles has been considered for the study described as follows:
1. **Enactive reproducing** learning style indicates one's preference for action based concrete experiences. The emphasis is on imitation and practice. It is reproduction oriented.
2. **Enactive constructive** learning style indicates preferences for conceptualizing one's experiences based on the processing of enactive information.
3. **Figural Reproducing** learning style refers to one's preference for visual experiences related to making diagrams, chart, picture, maps and photographs. The emphasis is on imitation and practice. It is reproduction oriented.
4. **Figural Constructive** learning style refers to the preference for processing of figural experiences which will lead to conceptualizations.
5. **Verbal Reproducing** learning style refers to written or spoken information related to subject matter communicated through words.
6. **Verbal Constructive** learning style refers to the preference for reflective, accommodative and abstract thinking about subject matter so as to develop conceptualizations.
7. **Enactive** learning style refers to the learning best by doing or when learning involves their hands or other parts of body.
8. **Figural** learning style refers to the learning effectively through activity or tasks that involve visual approach such as reading notes, books, looking at wall displays, reading lists to organize thoughts etc.
9. **Verbal** learning style prefer teacher to provide verbal instruction in order to gain information in the classrooms during the teaching and learning process.
10. **Reproducing** learning style emphasizes on imitation and practice. It is reproduction oriented.
11. **Constructive** learning style indicates preference for conceptualizing one's experiences based on processing of information.
Every individual is blessed with intelligence and nourished in multiple dimensions of intelligence. No one is perfectly intelligent and no one is zero intelligent. Students in classroom learn and perceive information in their own way. Knowledge of students' learning style and multiple intelligence enhance flourishment of appropriate teaching environment and develop good understanding in parents and children. Literature suggests that learning style and multiple intelligence of an individual are correlated with each other. Present study is undertaken to further explore the impact of multiple intelligence on learning styles of senior secondary students in relation to gender.

II. REVIEW OF RELATED LITERATURE

Studies related to multiple intelligence and learning style

Sahli, S. et al.(2011) aimed the study to determinate the using dominant multiple intelligence types and compare the learning preferences of Turkish cochlear implanted children aged four to ten in Turkey and Germany according to theory of multiple intelligence. The study has been conducted on a total of 80 children and four groups in Freiburg/Germany and Ankara/Turkey. The applications have been done in University of Freiburg, Cochlear Implant Center in Germany, and University of Hacettepe, ENT Department, Audiology and

speech Pathology Section in Turkey. In this study, the data have been collected by means of General Information Form and Cochlear Implant Information Form applied to parents. To determine the dominant multiple intelligence types of children, the TIMI (Teele Inventory of Multiple Intelligences) which was developed by Sue Teele have been used.The study results exposed that there was not a statistically significant difference on dominant intelligence areas and averages of scores of multiple intelligence types in control groups ($p>0.05$). Although, the dominant intelligence areas were different (except for first dominant intelligence) in cochlear implanted children in Turkey and Germany, there was not a statistically significant difference on averages of scores of dominant multiple intelligence types.

Ahanbor, Zahra & Sadighi, Firooz (2010) aimed at investigating the relationship between learning styles and multiple intelligences in order to examine whether a combination of them could improve students' learning or not. Results indicated that all male and female students who took part in the study had linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal as well as naturalistic intelligences. As for the difference between males and females in terms of the types of intelligences, results demonstrated that males and females do not differ in terms of linguistic, logical – mathematical, spatial, body-kinesthetic, musical, interpersonal, and naturalist intelligences. However, a significant difference was noticed between males and females with regard to intrapersonal intelligence. Besides, statistically significant relationship was observed between male and female students' learning styles and their multiple intelligences.

Zare-ee, A. et al. (2010) conducted a study on the possible relationships between Iranian university students' Multiple intelligences (MI) and their learning styles. Survey data were collected from 300 randomly selected learners from the student population of the University of Kashan in central Iran. The results of the study showed that visual style was highly correlated with all kinds of multiple intelligences, very strongly correlated with interpersonal and intrapersonal intelligences at the 0.05 level (2-tailed) and strongly correlated with natural, musical, logical, existential, kinesthetic, verbal and visual-spatial intelligences at the 0.01 level (2- tailed). Strong, positive correlations between Auditory style and natural and existential intelligences at the 0.01 level (2-tailed) was also found. Auditory style and visual-spatial intelligences were not associated. The findings of this study have both theoretical and practical implications for effective teaching in multicultural classrooms.

Kiong T. T., Othman W. & Heong Y.M. (2009) conducted study on relationship between learning styles and multiple intelligences among the second year Bachelor of Technology and Education STP (A/E/J) direct intake students in UniversitiTeknologi Malaysia. The whole population of 97 students was selected as sample. The Kolb Learning Styles Model (1976) and Gardner Multiple Intelligences Theory were used in this research. This is a quantitative approach research. The results showed that majority of the students tend to possess Diverger learning styles with emphasis on Intrapersonal Intelligence for the excellent level and Verbal-Linguistic for the low level. The Chi Square test for the 0.1 level of significance indicates that a signicant correlation exist between Kolb learning style with Musical Intelligence.

Smoak, B. Ann (2007) worked on the effects of incorporating learning styles and multiple intelligences in a language arts/mathematics classroom for returning dropouts in Columbia College. The purpose of the study was to determine if students' awareness of their learning styles and multiple intelligences would increase student achievement, engagement in the learning process, and retention in the classroom. The subjects of this study were a small group of pre-GED students in an adult education environment. Data was collected using a modified Dunn & Dunn Learning Style Inventory, a multiple intelligence survey excerpted from the works of Thomas Armstrong, and Bickey's Basic Assessment of Cognitive Organization. Study reported that the findings on individual learning styles and multiple intelligences had no effect on their achievement.

Statement of the problem

The present work is thus a study of learning style of male and female students with reference to their multiple intelligence at senior secondary level.

Objectives of study

Here, multiple intelligence has been studied at two levels: high and low. Thus, objectives formulated are as follows:

1. To study difference in learning styles of male and female students with reference to high multiple intelligence.
2. To study difference in learning styles of male and female students with reference to low multiple intelligence.

Hypothesis of study

Keeping in view the related literature on variables taken into the study, the following hypotheses have been formulated.

H1. There is no significant difference between learning styles of male and female students with reference to high multiple intelligence.

In the present study, there are 11 learning styles and that have been studied in the context of 9 dimensions of multiple intelligence. Each dimension of multiple intelligence has been studied for every learning style.

Therefore, to study, analyse and interpret data regarding the above hypotheses, the following sub-hypotheses have been formulated.
The 9 sub-hypotheses are named as 1.1-1.9 belonging linguistic, logical, bodily-kinesthetic, musical, spatial, naturalistic, interpersonal, intrapersonal, existential intelligence respectively.
The sub-hypotheses formulated are as follows:

Sub-hypotheses:
1.1. There is no significant difference between learning styles of male and female students with reference to high linguistic intelligence.
1.2. There is no significant difference between learning style of male and female studentswith reference to high logical intelligence.
1.3. There is no significant difference between learning style of male and female students with reference to high bodily-kinesthetic intelligence.
1.4. There is no significant difference between learning style of male and female students with reference to high musical intelligence.
1.5. There is no significant difference between learning style of male and female students with reference to high spatial intelligence.
1.6. There is no significant difference between learning style of male and female students with reference to high naturalistic intelligence.
1.7. There is no significant difference between learning style of male and female students with reference to high interpersonal intelligence.
1.8. There is no significant difference between learning style of male and female students with reference to high intrapersonal intelligence.
1.9. There is no significant difference between learning style of male and female students with reference to high existential intelligence.

H2. There is no significant difference between learning style of male and female students with reference to low multiple intelligence.
The sub-hypotheses formulated are as follows:
Sub-hypotheses:
2.1. There is no significant difference between learning style of male and female students with reference to low linguistic intelligence.
2.2. There is no significant difference between learning style of male and female students with reference to low logical intelligence.
2.3. There is no significant difference between learning style of male and female students with reference to low bodily-kinesthetic intelligence.
2.4. There is no significant difference between learning style of male and female students with reference to low musical intelligence.
2.5. There is no significant difference between learning style of male and female students with reference to low spatial intelligence.
2.6. There is no significant difference between learning style of male and female students with reference to low naturalistic intelligence.
2.7. There is no significant difference between learning style of male and female students with reference to low interpersonal intelligence.
2.8. There is no significant difference between learning style of male and female students with reference to low intrapersonal intelligence.
2.9. There is no significant difference between learning style of male and female students with reference to low existential intelligence.

III. METHODOLOGY

Method of the study: Descriptive survey method was used to study the learning style of high and low multiple intelligence in relation to gender.
Sample: A sample of 250 boys and 250 girls studying in four secondary schools of Meerut city was selected on random basis for the study. The sample was equal on age and socio-economic status.
Tools used in the study: Multiple intelligence scale (Surbhi Agarwal, Prof. Suraksha) prepared by the investigator herself and Learning style Inventory (Prof. K. S. Misra) was used in the study.
Statistical techniques used
Percentage and significance of percentage were calculated to analyse the data.

Analysis of the data
Testing of Hypothesis 1
HYPOTHESES 1: says that **There is no significant difference between learning styles of male and female senior secondary students with reference to high multiple intelligence.**
The 9 sub-hypotheses are named as 1.1-1.9 belonging linguistic, logical, bodily-kinesthetic, musical, spatial, naturalistic, interpersonal, intrapersonal, existential intelligence respectively.
The above hypotheses and its sub-hypotheses were analysed by using test of significance of percentages and results are presented in the following table 1.0.

Table 1.0: Percentages on the learning styles of male and female students with reference to high multiple intelligence
(Total no. of students=135)

Learning style	Male (N=65)	Female (N=70)	Significance of %
Enactive Reproducing	31% (20)	21% (15)	1.34
Enactive Constructive	31% (20)	36% (25)	0.62
Figural Reproducing	0% (0)	7% (5)	2.20**
Figural Constructive	15% (10)	29% (20)	1.97
Verbal Reproducing	8% (5)	7% (5)	0.22
Verbal Constructive	15% (10)	0% (0)	3.41*
Enactive	62% (40)	57% (40)	0.59
Figural	15% (10)	36% (25)	2.81*
Verbal	23% (15)	7% (5)	2.65*
Reproducing	62% (40)	36% (25)	3.05*
Constructive	38% (25)	64% (45)	3.05*

*Significant at 0.05, 0.01 level of significance
**Significant at 0.05 level of significance

Table 1.0 shows that significance of percentage values for figural reproducing, verbal constructive, figural, verbal, reproducing and constructive learning styles have come out to be significant. Therefore, the null hypotheses are rejected as calculated values are greater than that of tabulated values. The analysis of significance of percentage values shows the close proximity leaves to conclusion that male and female students do not differ with respect to enactive reproducing, enactive constructive, figural constructive, verbal reproducing and enactive learning styles.
So, null hypotheses are accepted as these have not come out to be significant.

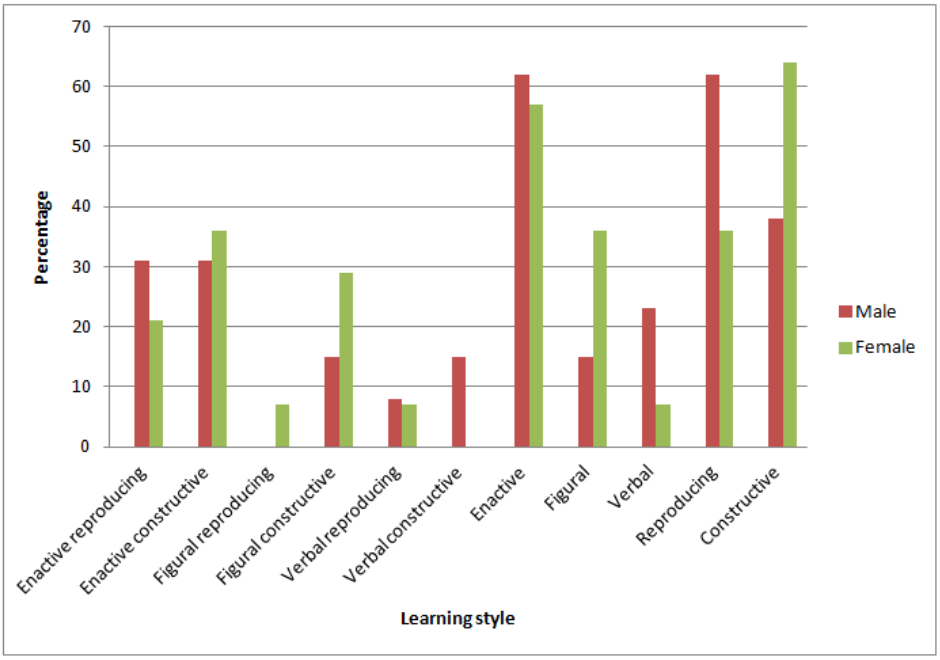

Figure 1.1: Comparison of percentages on the learning styles of male and female students with reference to high multiple intelligence.

In Figure 1.1, the analysis of percentage values shows that

- Male students prefer verbal constructive, verbal and reproducing learning style than female students.
- Female students with high multiple intelligence prefer figural reproducing, figural and constructive learning style than their male counterparts.

The sub-hypotheses formulated are as follows:

Sub-Hypothesis 1.1.reads as **There is no significant difference between learning styles of male and female senior secondary students with reference to high Linguistic intelligence.**

The results of testing of hypothesis framed to study learning styles with reference to high linguistic intelligence are shown in table 1.1 and have also been represented by Bar Diagram also.

Table 1.1: Percentages on the learning styles of male and female students with reference to high linguistic intelligence

(Total no. of students=135)

Learning style	Male (N=55)	Female (N=80)	Significance of %
Enactive Reproducing	45% (25)	19% (15)	3.25*
Enactive Constructive	18% (10)	25% (20)	0.96
Figural Reproducing	0% (0)	6% (5)	1.85
Figural Constructive	28% (15)	0% (0)	5.03*
Verbal Reproducing	9% (5)	31% (25)	3.03*
Verbal Constructive	0% (0)	19% (15)	3.43*
Enactive	27% (15)	25% (20)	0.26
Figural	14% (35)	12% (10)	0.34
Verbal	9% (5)	63% (50)	6.27*
Reproducing	18% (10)	69% (55)	5.83*
Constructive	82% (45)	31% (25)	5.83*

*Significant at 0.05, 0.01 level of significance

Table 1.1 reveals the significance of percentage values for male and female students on enactive reproducing, figural constructive, verbal reproducing, verbal constructive, verbal, reproducing and constructive learning styles with reference to high linguistic intelligence have come out to be significant. Hence,the null hypotheses for these learning styles are rejected. It means male and female students differ from each other on enactive reproducing, figural constructive, verbal reproducing, verbal constructive, verbal, reproducing and constructive learning styles.

Hypotheses framed for enactive constructive, figural reproducing, enactive and figural learning styles are accepted as their significance of percentage values have not come out to be significant.

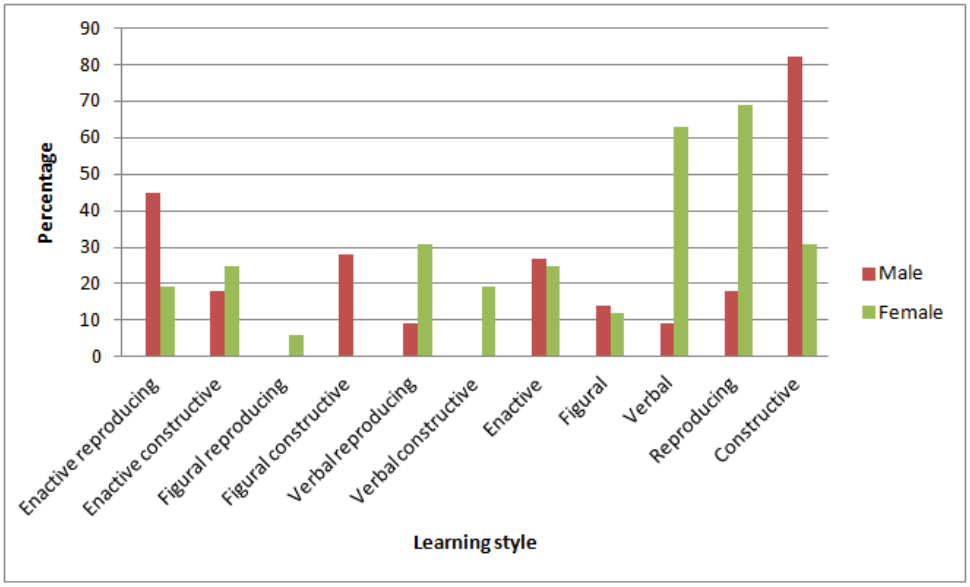

Figure 1.2: Comparison of percentages on the learning styles of male and female students with reference to high linguistic intelligence.

In the above Figure 1.2, the analysis of percentage values shows that

- Male students prefer enactive reproducing, figural constructive and constructive learning style than female students.
- Female students with high linguistic intelligence prefer verbal reproducing, verbal constructive, verbal, reproducing learning style than their male counterparts.

Sub-Hypothesis 1.2. states that **There is no significant difference between learning style of male and female students with reference to high Logical intelligence.**

The results of testing of hypothesis framed to study learning styles with reference to high logical intelligence are shown in table 1.2 and have been represented by Bar Diagram also.

Table 1.2: Percentages on the learning styles of male and female students with reference to high logical intelligence

(Total no. of students=135)

Learning style	Male (N=85)	Female (N=50)	Significance of %
Enactive Reproducing	12% (10)	20% (10)	1.25
Enactive Constructive	29% (25)	0% (0)	17.90*
Figural Reproducing	0% (0)	20% (10)	2.96*
Figural Constructive	24% (20)	20% (10)	0.53
Verbal Reproducing	6% (5)	20% (10)	2.48**
Verbal Constructive	29% (25)	20% (10)	1.15
Enactive	18% (15)	10% (5)	1.25
Figural	53% (45)	20% (10)	3.75*
Verbal	29% (25)	70% (35)	4.61*
Reproducing	24% (20)	80% (40)	6.29*
Constructive	76% (65)	20% (10)	6.29*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

Table 1.2 reveals that significance of percentage values of male and female students in enactive constructive, figural reproducing, verbal reproducing, figural, verbal, reproducing and constructive learning styles with reference to high logical intelligence have come out to be significant. Therefore, the null hypotheses in case of these seven dimensions are rejected which means male and female differ students differ from each other on enactive constructive, figural reproducing, verbal reproducing, figural, verbal, reproducing, constructive learning styles.

Hypotheses framed for enactive reproducing, figural constructive, verbal constructive, enactive and figural learning styles are accepted as percentage of significance values have not come out to be significant.

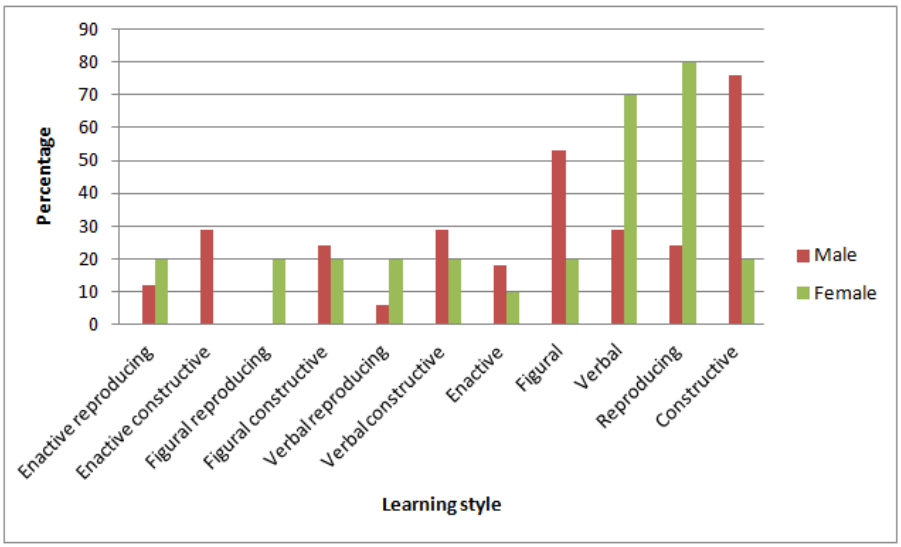

Figure 1.3: Comparison of percentages on the learning styles of male and female students with reference to high logical intelligence.

In the above Figure 1.3, the analysis of percentage values shows that

- Male students prefer enactive constructive, figural reproducing, figural and constructive learning style than female students.
- Female students with high logical intelligence prefer figural reproducing, verbal reproducing, verbal and reproducing learning style than their male counterparts.

Sub-Hypothesis 1.3. reads as **There is no significant difference between learning style of male and female students with reference to high bodily-kinesthetic intelligence.**
The above hypothesis was analysed by using test of significance of percentages and results are presented in the following table 1.3. The graphical representation has also been shown in figure 1.4.

Table 1.3: Percentages on the learning styles of male and female students with reference to high bodily-kinesthetic intelligence
(Total no. of students=135)

Learning style	Male (N=75)	Female (N=60)	Significance of %
Enactive Reproducing	27% (10)	17% (10)	1.40
Enactive Constructive	20% (15)	17% (10)	0.45
Figural Reproducing	0% (0)	25% (15)	4.67*
Figural Constructive	27% (20)	0% (0)	4.44*
Verbal Reproducing	6% (5)	33% (20)	4.12*
Verbal Constructive	20% (15)	8% (5)	1.99**
Enactive	53% (40)	17% (10)	4.38*
Figural	27% (20)	33% (20)	0.77
Verbal	20% (15)	50% (30)	3.73*
Reproducing	67% (50)	17% (10)	5.90*
Constructive	33% (25)	83% (50)	5.90*

*Significant at 0.05, 0.01 level of significance
** Significant at 0.05 level of significance

Table 1.3 shows that significance of percentage values for figural reproducing, figural constructive, verbal reproducing, verbal constructive, enactive, verbal, reproducing and constructive learning styles of male and female students with reference to high bodily-kinesthetic intelligence have come out to be significant. Therefore, the null hypotheses are rejected which means male and female students differ each other on figural reproducing, figural constructive, verbal reproducing, verbal constructive, enactive, verbal, reproducing and constructive learning styles.

Yet there is difference in percentages of learning style enactive reproducing, enactive constructive and figural opted by male and female students but it is not significant. Therefore, hypotheses framed for the respective learning styles are accepted.

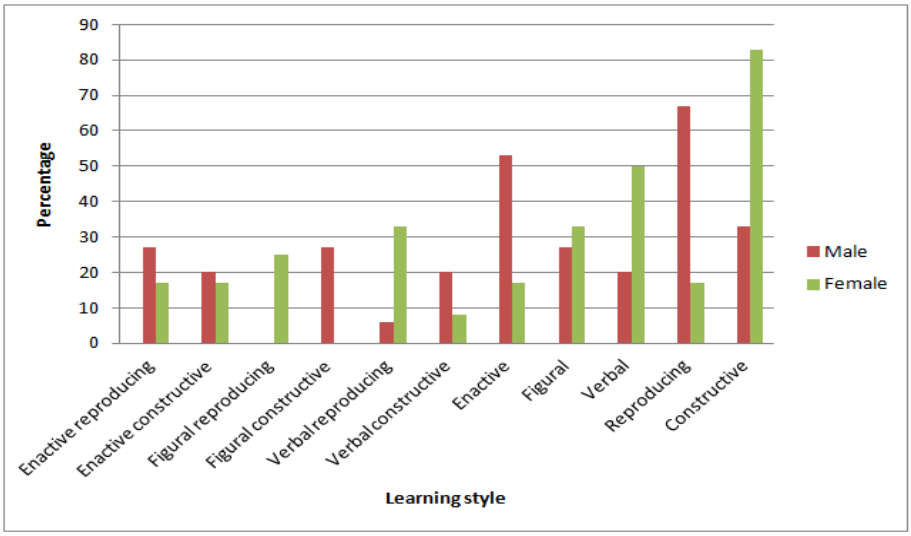

Figure 1.4: Comparison of percentages on the learning styles of male and female students with reference to high bodily-kinesthetic intelligence.

The analysis shows that

- Male students prefer figural constructive, verbal constructive, enactive, reproducing learning style than female students.
- Female students with high bodily-kinesthetic intelligence prefer figural reproducing, verbal reproducing, figural, verbal and constructive learning style than their male counterparts.

Sub-Hypothesis 1.4.reads as **There is no significant difference between learning style of male and female students with reference to high Musical intelligence.**
The results of testing of hypothesis framed to study learning styles with reference to high musical intelligence are shown in the following table 1.4.

Table 1.4: Percentages on the learning styles of male and female students with reference to high musical intelligence
(Total no. of students=135)

Learning style	Male (N=60)	Female (N=75)	Significance of %
Enactive Reproducing	25% (15)	13% (10)	1.82
Enactive Constructive	25% (15)	27% (20)	0.27
Figural Reproducing	0% (0)	0% (0)	0
Figural Constructive	0% (0)	33% (25)	5.01*
Verbal Reproducing	17% (10)	7% (5)	1.84
Verbal Constructive	33% (20)	20% (15)	1.74
Enactive	33% (20)	20% (15)	1.74
Figural	42% (25)	27% (20)	1.86
Verbal	25% (15)	53% (40)	3.35*
Reproducing	67% (40)	33% (25)	4*
Constructive	33% (20)	67% (50)	4*

*Significant at 0.05, 0.01 level of significance
** Significant at 0.05 level of significance

It is evident from Table 1.4 that significance of percentage values for figural constructive, verbal, reproducing and constructive learning styles of male and female students have come out to be significant. Therefore, the null hypotheses are rejected which means male and female students differ on figural constructive, verbal, reproducing and constructive learning styles with reference to high musical intelligence.

Since male and female students are not showing any significant preference for opting learning styles enactive reproducing, enactive constructive, figural reproducing, verbal reproducing, verbal constructive, enactive and figural. Therefore, null hypotheses framed for enactive reproducing, enactive constructive, figural reproducing, verbal reproducing; verbal constructive, enactive and figural learning styles are accepted.

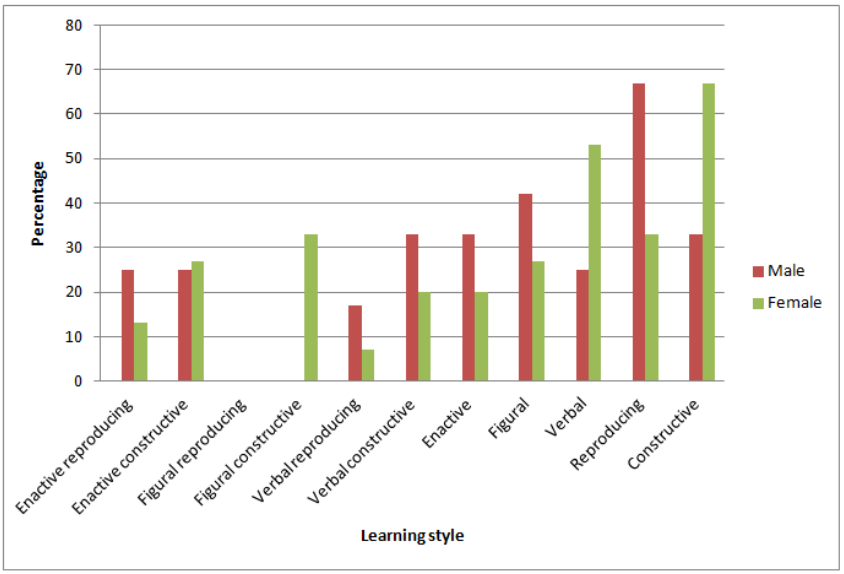

Figure 1.5: Comparison of percentages on the learning styles of male and female students with reference to high musical intelligence.

The analysis of percentage values shows that

- Male students prefer reproducing learning style than female students.
- Female students with high musical intelligence prefer figural constructive, verbal and constructive learning style than their male counterparts.

Sub-Hypothesis 1.5. There is no significant difference between learning style of male and female students with reference to high spatial intelligence.

The results of testing of hypothesis framed to study learning styles with reference to high spatial intelligence are shown in the following table 1.5 and graphical representation of results have also been depicted in figure 1.6.

Table 1.5: Percentages on the learning styles of male and female students with reference to high spatial intelligence

(Total no. of students=135)

Learning style	Male (N=60)	Female (N=75)	Significance of %
Enactive Reproducing	25% (15)	27% (20)	0.27
Enactive Constructive	33% (20)	13% (10)	2.84*
Figural Reproducing	0% (0)	13% (10)	2.95*
Figural Constructive	8% (5)	13% (10)	0.94
Verbal Reproducing	17% (10)	13% (10)	0.66
Verbal Constructive	17% (10)	21% (15)	0.59
Enactive	42% (25)	33% (25)	1.09
Figural	33% (20)	13% (10)	2.84*
Verbal	25% (15)	54% (40)	3.46*
Reproducing	17% (10)	67% (50)	5.91*
Constructive	83% (50)	33% (25)	5.91*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

Table 1.5 shows that significance of percentage values for enactive constructive, figural reproducing, figural, verbal, reproducing and constructive learning styles of male and female students with reference to high spatial intelligence have come out to be significant. Therefore, the null hypotheses are rejected which means male and female students differ each other on enactive constructive, figural reproducing, figural, verbal, reproducing and constructive learning styles.

Male and female students are not showing any significant preference for opting learning styles enactive reproducing, figural constructive, verbal reproducing, verbal constructive and enactive. Therefore, null hypotheses framed for enactive reproducing, figural constructive, verbal reproducing, verbal constructive and enactive learning styles are accepted.

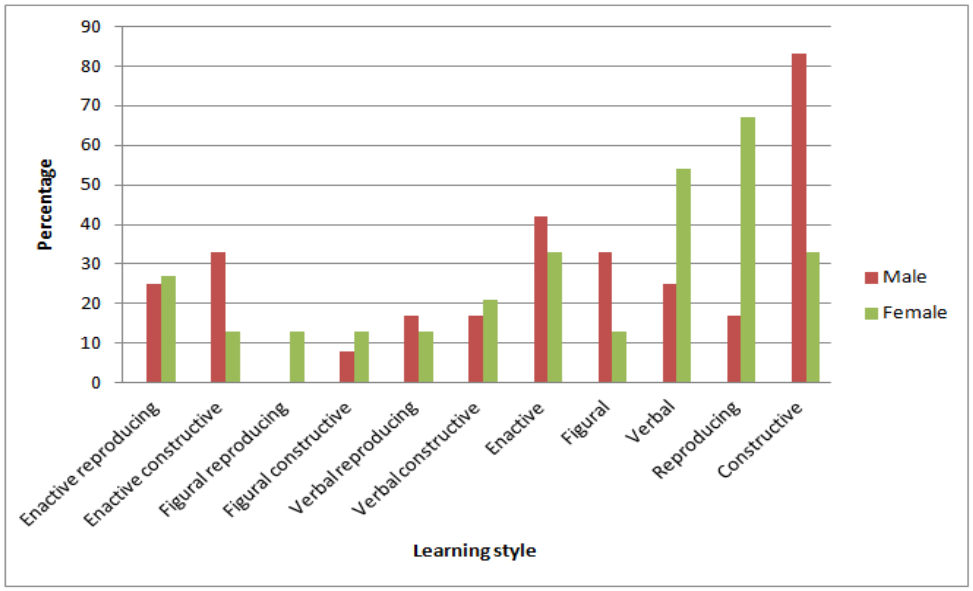

Figure 1.6: Comparison of percentages on the learning styles of male and female students with reference to high spatial intelligence.

The analysis shows that

- Male students prefer enactive constructive, figural and constructive learning style than female students.
- Female students with high spatial intelligence prefer figural reproducing, verbal and reproducing learning style than their male counterparts.

<u>Sub-Hypothesis 1.6.</u> There is no significant difference between learning style of male and female students with reference to high Naturalistic intelligence.

The results of testing of hypotheses framed to study learning styles with reference to naturalistic intelligence are shown in table 1.6.

Table 1.6: Percentages on the learning styles of male and female students with reference to high naturalistic intelligence

(Total no. of students=135)

Learning style	Male (N=80)	Female (N=55)	Significanceof %
Enactive Reproducing	31% (25)	0% (0)	4.57*
Enactive Constructive	19% (15)	27% (15)	1.10
Figural Reproducing	12% (10)	9% (5)	0.55
Figural Constructive	0% (0)	9% (5)	2.74*
Verbal Reproducing	19% (15)	18% (10)	0.14
Verbal Constructive	19% (15)	37% (20)	2.33**
Enactive	31% (25)	27% (15)	0.50
Figural	19% (15)	18% (10)	0.14
Verbal	50% (40)	55% (30)	0.57
Reproducing	62% (50)	9% (5)	6.17*
Constructive	38% (30)	91% (50)	6.17*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

It is evident from Table 1.6 that significance of percentage values for enactive reproducing, figural constructive, verbal constructive, reproducing and constructive learning styles of male and female students have come out to be significant. Therefore, the null hypotheses are rejected as calculated values are greater than tabulated values which means male and female students differ from each other on enactive reproducing, figural constructive, verbal constructive, reproducing and constructive learning styles.

Since male and female students are not showing any significant preference for opting learning styles enactive constructive, figural reproducing, verbal reproducing, enactive, figural and verbal. **Therefore, null hypotheses framed for enactive constructive, figural reproducing, verbal reproducing, enactive, figural and verbal learning styles are accepted.**

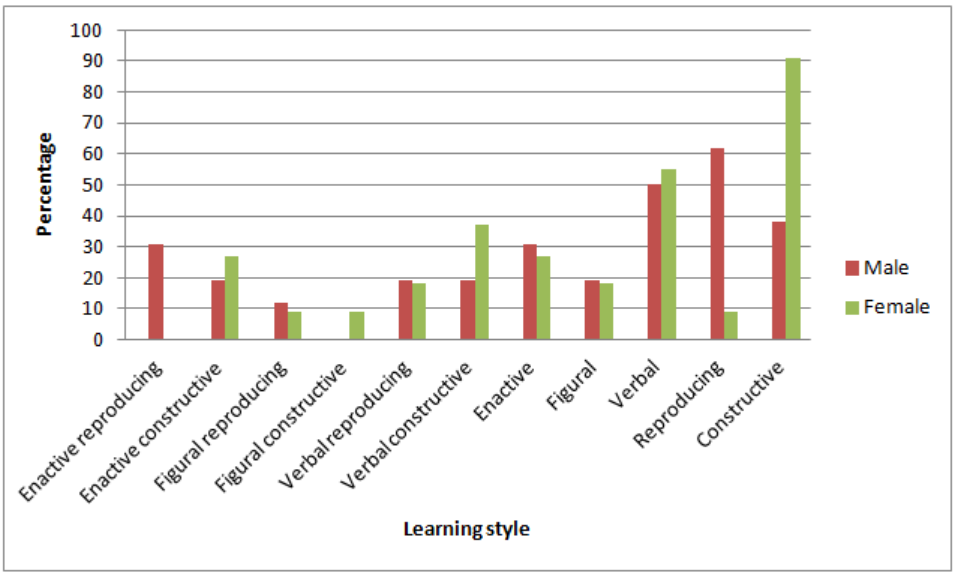

Figure 1.7: Comparison of percentages on the learning styles of male and female students with reference to high naturalistic intelligence.

The above figure 1.7 concludes the analysis of percentage values as

- Male students prefer enactive reproducing and reproducing learning style than female students.
- Female students with high naturalistic intelligence prefer figural constructive, verbal constructive and constructive learning style than male students.

Sub-Hypothesis 1.7. There is no significant difference between learning style of male and female students with reference to high Interpersonal intelligence.

The results of testing of hypothesis framed to study learning styles with reference to high interpersonal intelligence are shown in the following table 1.7 and graphical representation of results have also been depicted in figure 1.8.

Table 1.7: Percentages on the learning styles of male and female students with reference to high interpersonal intelligence

(Total no. of students=135)

Learning style	Male (N=45)	Female (N=90)	Significance of %
Enactive Reproducing	22% (10)	20% (15)	0.27
Enactive Constructive	22% (10)	30% (25)	0.98
Figural Reproducing	11% (5)	2% (5)	2.27**
Figural Constructive	34% (15)	23% (20)	1.36
Verbal Reproducing	11% (5)	2% (5)	2.27**
Verbal Constructive	0% (0)	23% (20)	3.51*
Enactive	33% (15)	22% (20)	1.38
Figural	56% (25)	22% (20)	3.97*
Verbal	11% (5)	56% (50)	5.03*
Reproducing	67% (30)	22% (20)	5.13*
Constructive	33% (15)	78% (70)	5.13*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

Table 1.7 shows that significance of percentage values for figural reproducing, verbal reproducing, verbal constructive, figural, verbal, reproducing and constructive learning styles with reference to high interpersonal intelligence of male and female students have not come out to be significant. Therefore, null hypotheses are rejected. It means significant difference lies between male and female students as calculated values are greater than that of tabulated values.

The hypotheses for learning styles enactive reproducing, enactive constructive, figural constructive and enactive have not come out to be significant. Therefore, null hypotheses framed for enactive reproducing, enactive constructive, figural constructive and enactive learning styles are accepted.

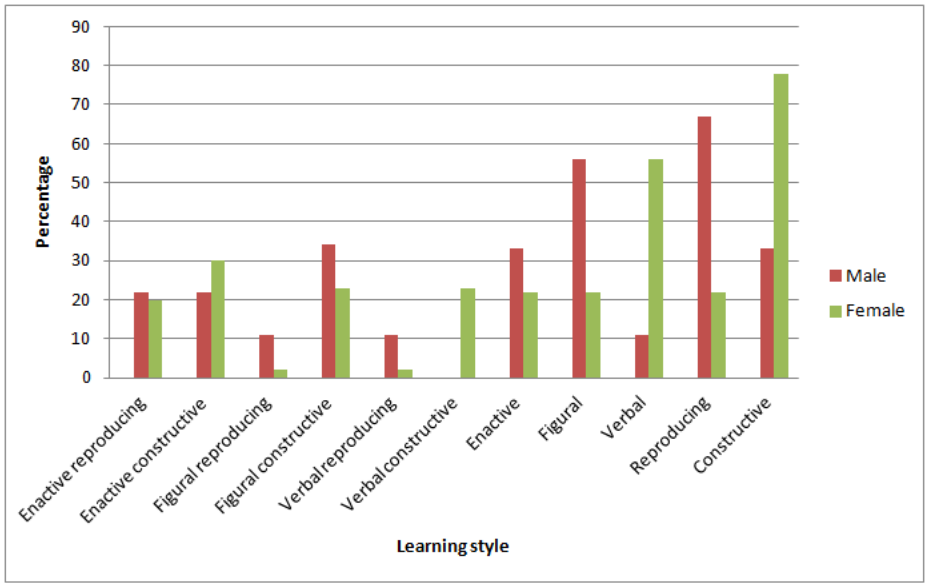

Figure 1.8: Comparison of percentages on the learning styles of male and female students with reference to high interpersonal intelligence.

The analysis shows that

- Male students prefer figural reproducing, verbal reproducing, figural and reproducing learning style than female students.
- Female students with high interpersonal intelligence prefer verbal constructive, verbal and constructive learning style than male students.

Sub-Hypothesis 1.8. states that **There is no significant difference between learning style of male and female students with reference to high Intrapersonal intelligence.**

The results of testing of hypotheses framed to study learning styles with reference to intrapersonal intelligence are shown in table 1.8.

Table 1.8: Percentages on the learning styles of male and female students with reference to high intrapersonal intelligence

(Total no. of students=135)

Learning style	Male (N=65)	Female (N=70)	Significance of %
Enactive Reproducing	23% (15)	21% (15)	0.28
Enactive Constructive	23% (15)	7% (5)	2.65*
Figural Reproducing	0% (0)	7% (5)	0.69
Figural Constructive	23% (15)	14% (10)	1.36
Verbal Reproducing	8% (5)	21% (15)	2.15**
Verbal Constructive	23% (15)	30% (20)	0.93
Enactive	31% (20)	29% (20)	0.25
Figural	31% (20)	14% (10)	2.40**
Verbal	38% (25)	57% (40)	2.23**
Reproducing	15% (10)	64% (45)	5.86*
Constructive	85% (55)	36% (25)	5.86*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

It is evident from Table 1.8 that the significance of percentage values for enactive constructive, verbal reproducing, figural, verbal, reproducing and constructive learning styles have come out to be significant. Therefore, the null hypotheses are rejected which means male and female students differ from each other on aforesaid dimensions with reference to high intrapersonal intelligence.

Since male and female students are not showing any significant preference for opting learning styles enactive reproducing, figural reproducing, figural constructive, verbal constructive and enactive. Therefore, null hypotheses framed for the above learning styles are accepted.

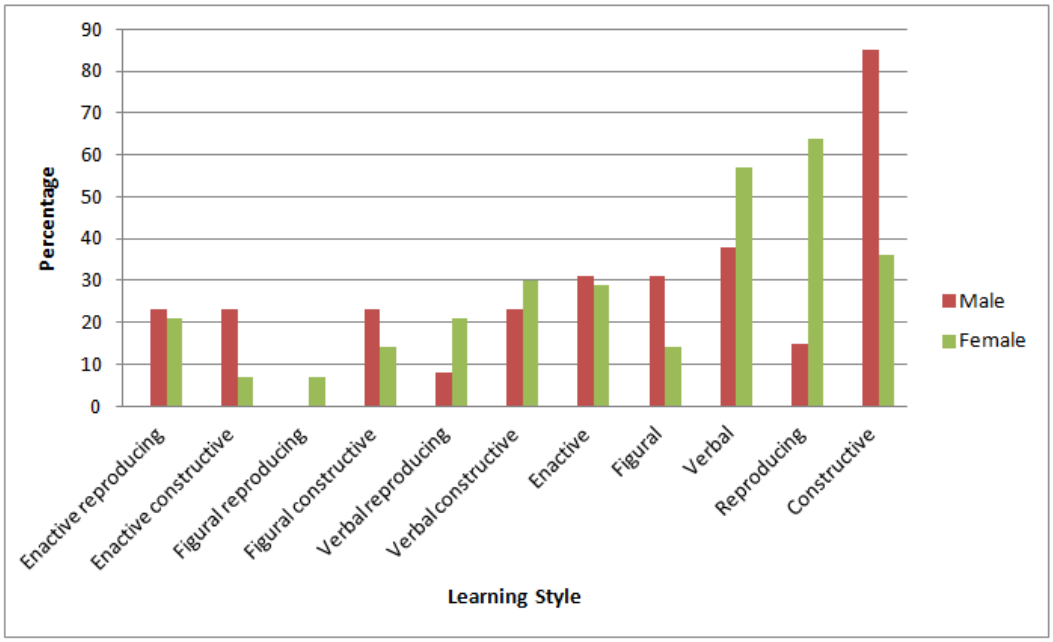

Figure 1.9: Comparison of percentages on the learning styles of male and female students with reference to high intrapersonal intelligence.

The analysis of significance of percentage values reveals that

- Male students prefer enactive constructive, figural and constructive learning style than female students.
- Female students with high intrapersonal intelligence prefer verbal reproducing, verbal and reproducing learning style than male students.

Sub-Hypothesis 1.9. There is no significant difference between learning style of male and female students with reference to high Existential intelligence.

The results of testing of hypothesis framed to study learning styles with reference to high existential intelligence are shown in the following table 1.9 and graphical representation of results have also been depicted in figure 1.10.

Table 1.9: Percentages on the learning styles of male and female students with reference to high existential intelligence

(Total no. of students=135)

Learning style	Male (N=40)	Female (N=95)	Significanceof %
Enactive Reproducing	50% (20)	11% (10)	4.99*
Enactive Constructive	0% (0)	16% (15)	2.70*
Figural Reproducing	0% (0)	5% (5)	1.45
Figural Constructive	12% (5)	26% (25)	1.81
Verbal Reproducing	26% (10)	21% (20)	0.64
Verbal Constructive	12% (5)	21% (20)	1.24
Enactive	63% (25)	21% (20)	4.76*
Figural	0% (0)	37% (35)	4.51*
Verbal	37% (15)	42% (40)	0.54
Reproducing	38% (15)	53% (50)	1.60
Constructive	62% (25)	47% (45)	1.60

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

It is evident from Table 1.9 that the significance of percentage values for enactive reproducing, enactive constructive, enactive and figural learning styles with reference to high existential intelligence of male and female students have come out to be significant. Therefore, the null hypotheses in case of these four dimensions are rejected which means male and female students differ from each other on enactive reproducing, enactive constructive, enactive and figural learning styles.

Since male and female students are not showing any significant preference for opting learning styles figural reproducing, figural constructive, verbal reproducing, verbal constructive, verbal, reproducing and constructive Therefore, null hypotheses framed for the above learning styles are accepted.

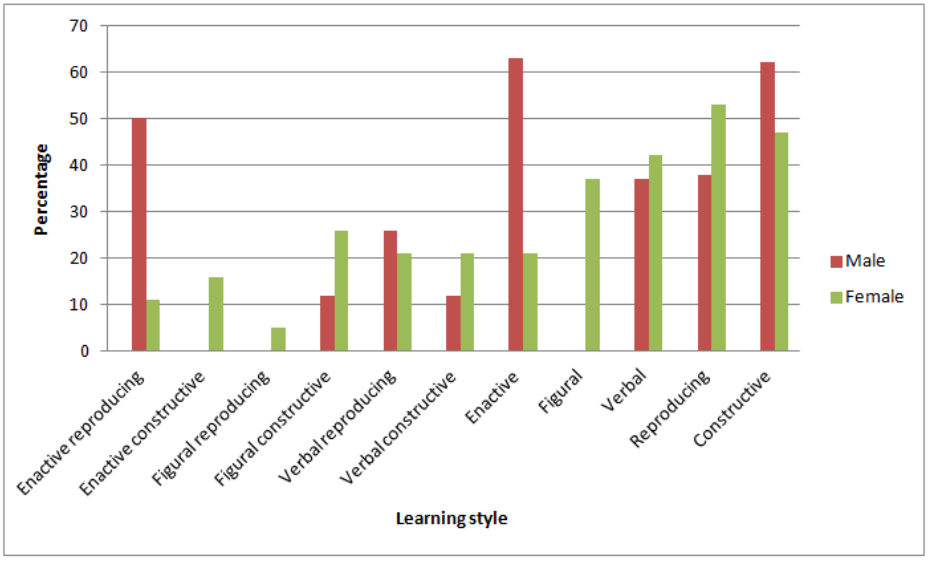

Figure 1.10: Comparison of percentages on the learning styles of male and female students with reference to high existential intelligence.

From the figure 1.10, the analysis concludes that

- Male students prefer enactive reproducing and enactive learning style than female students.
- Female students with high existential intelligence prefer enactive constructive and figural learning style than male students.

The results were in accordance with the studies conducted by Sahli, S. et al.(2011) found that there was a statistically significant difference on dominant intelligence areas and averages of scores of multiple intelligence types in control groups. Ahanbor, Zahra &Sadighi, Firooz (2010) revealed that statistically significant relationship was observed between male and female students' learning styles and their multiple intelligences.

Testing of Hypothesis 2

HYPOTHESES 2: states that **There is no significant difference between learning style of male and female senior secondary students with reference to low multiple intelligence.**

The above hypotheses were analysed by using test of significance of percentages and results are presented in the following table 2.0.

Table 2.0: Percentages on the learning styles of male and female students with reference to low multiple intelligence

(Total no. of students=135)

Learning style	Male (N=80)	Female (N=55)	Significance of %
Enactive Reproducing	31% (25)	45% (25)	1.65
Enactive Constructive	6% (5)	28% (15)	3.51*
Figural Reproducing	6% (5)	9% (5)	0.65
Figural Constructive	31% (25)	0% (0)	4.55*
Verbal Reproducing	0% (0)	9% (5)	2.72*
Verbal Constructive	26% (20)	9% (5)	2.46**
Enactive	37% (30)	73% (40)	4.09*
Figural	37% (30)	9% (5)	3.64*
Verbal	26% (20)	18% (10)	1.08
Reproducing	31% (25)	55% (30)	2.77*
Constructive	69% (55)	45% (25)	2.77*

*Significant at 0.05, 0.01 level of significance

**Significant at 0.05 level of significance

Table 2.0 shows that significance of percentage values for enactive constructive, figural constructive, verbal reproducing, verbal constructive, enactive, figural, reproducing and constructive learning styles with reference to low multiple intelligence have come out to be significant as calculated values are greater than that of tabulated values. Therefore, the null hypotheses for the aforesaid dimensions are rejected.

Hypotheses framed for enactive reproducing, figural reproducing and verbal learning styles are accepted as there exists no significant difference between male and female students. Though, male and female differ each other but not up to the mark of significance.

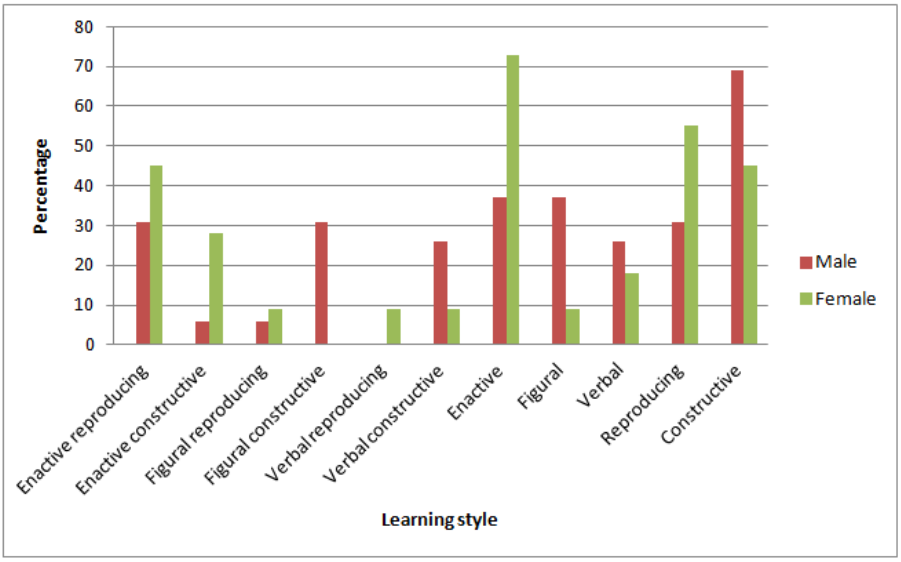

Figure 2.0: Comparison of percentages on the learning styles of male and female students with reference to low multiple intelligence.

The analysis shows that

- Female students with low multipleintelligence prefer enactive constructive, verbal reproducing, enactive and reproducing learning style than their male counterparts.
- Male students prefer figural constructive, verbal constructive, figural and constructive learning style than female students.

The sub-hypotheses formulated are as follows:

Sub-Hypothesis 2.1. There is no significant difference between learning style of male and female senior secondary students with reference to low Linguistic intelligence.

The results of testing of hypothesis framed to study learning styles with reference to low linguistic intelligence are shown in table 2.1.

Table 2.1: Percentages on the learning styles of male and female students with reference to low linguistic intelligence

(Total no. of students=135)

Learning style	Male (N=60)	Female (N=75)	Significance of %
Enactive Reproducing	33% (20)	40% (30)	0.84
Enactive Constructive	0% (0)	13% (10)	2.89*
Figural Reproducing	0% (0)	20% (15)	3.67*
Figural Constructive	17% (10)	13% (10)	0.65
Verbal Reproducing	8% (5)	7% (5)	0.22
Verbal Constructive	42% (25)	7% (5)	4.83*
Enactive	59% (35)	33% (25)	3.02*
Figural	8% (5)	20% (15)	1.96
Verbal	33% (20)	47% (35)	1.65
Reproducing	25% (15)	73% (55)	5.54*
Constructive	75% (45)	27% (20)	5.54*

*Significant at 0.05, 0.01 level of significance

It is evident from Table 2.1 that significance of percentage values for enactive constructive, figural reproducing, verbal constructive, enactive, reproducing and constructive learning styles with reference to low linguistic intelligence have come out to be significant. Therefore, the null hypotheses framed respective to aforesaid are rejected which means male and female students differ from each other on the above learning styles. So, hypotheses enactive constructive, figural reproducing, verbal constructive, enactive, reproducing and constructive learning styles are rejected as significant difference occurred between them.

Hypotheses framed for enactive reproducing, figural constructive, verbal reproducing, figural and verbal learning styles are accepted as there exists no significant difference between male and female students.

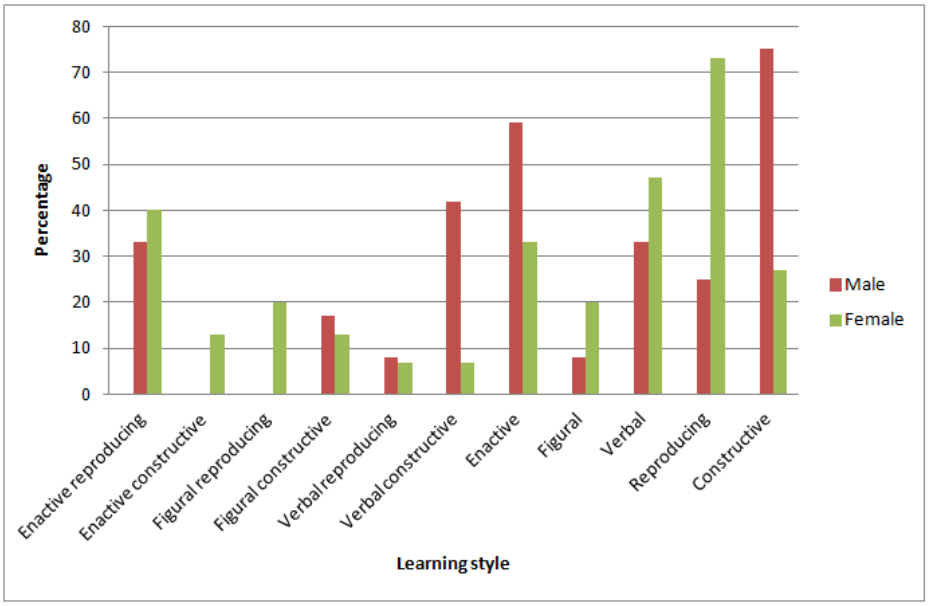

Figure 2.1: Comparison of percentages on the learning styles of male and female students with reference to low linguistic intelligence.

The analysis of significance of percentage values shows that

- Female students with low linguistic intelligence prefer enactive constructive, figural reproducing and reproducing learning style than male students.
- Male students prefer verbal constructive, enactive and constructive learning style than female students.

Sub-Hypothesis 2.2. There is no significant difference between learning style of male and female students with reference to low Logical intelligence.

The results of testing of hypothesis framed to study learning styles with reference to low linguistic intelligence are shown in table 2.2 and graphical representation has also been demonstrated in figure 2.2..

Table 2.2: Percentages on the learning styles of male and female students with reference to low logical intelligence

(Total no. of students=135)

Learning style	Male (N=55)	Female (N=80)	Significance of %
Enactive Reproducing	45% (25)	44% (35)	0.11
Enactive Constructive	0% (0)	12% (10)	2.67*
Figural Reproducing	9% (5)	7% (5)	0.42
Figural Constructive	9% (5)	12% (10)	0.55
Verbal Reproducing	9% (5)	0% (0)	2.74*
Verbal Constructive	28% (15)	25% (20)	0.39
Enactive	46% (25)	56% (45)	1.14
Figural	18% (10)	6% (5)	2.21**
Verbal	36% (20)	38% (30)	0.24
Reproducing	27% (15)	69% (55)	4.81*
Constructive	73% (40)	31% (25)	4.81*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

Table 2.2 reveals that significance of percentage values for enactive constructive, verbal reproducing, figural, reproducing and constructive learning styles of male and female students with reference to low logical intelligence have come out to be significant. Therefore, the null hypotheses are rejected which means male and female differ from each other on aforesaid dimensions.

Hypotheses framed for enactive reproducing, figural reproducing, figural constructive, verbal constructive, enactive and verbal learning styles are accepted because these have not come out to be significant.

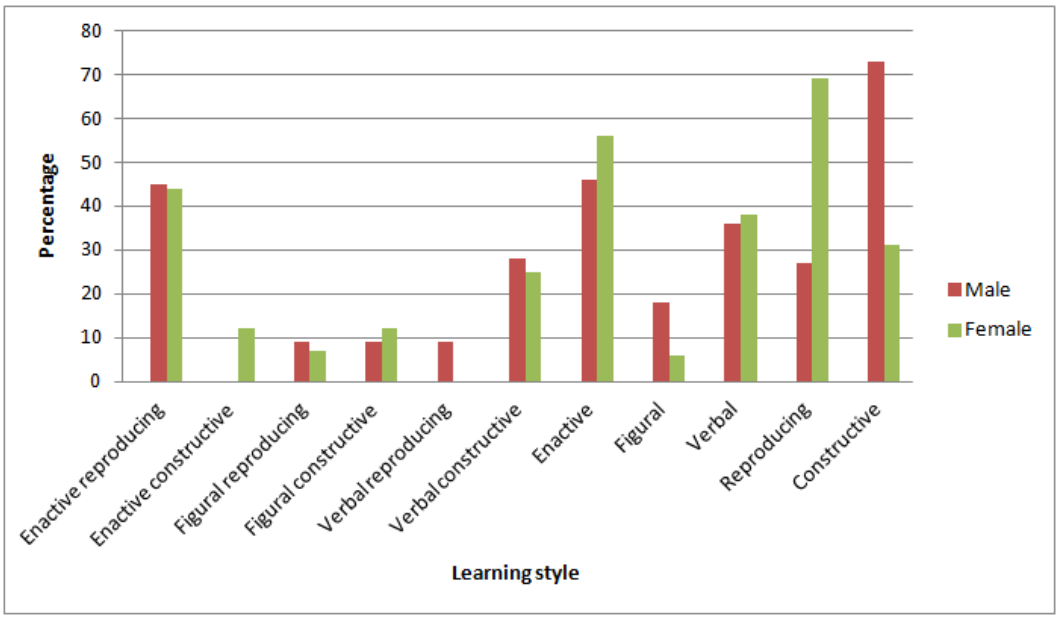

Figure 2.2: Comparison of percentages on the learning styles of male and female students with reference to low logical intelligence.

The analysis shows that

- Male students prefer verbal reproducing, figural and constructive learning style than female students.
- Female students with low logical intelligence prefer enactive constructive and reproducing learning style than their male counterparts.

Sub-Hypothesis 2.3.There is no significant difference between learning style of male and female students with reference to low bodily-kinesthetic intelligence.

The results of testing of hypothesis framed to study learning styles with reference to low bodily-kinesthetic intelligence are shown in table 2.3 and graphical representation has also been depicted in figure 2.3.

Table 2.3: Percentages on the learning styles of male and female students with reference to low bodily-kinesthetic intelligence

(Total no. of students=135)

Learning style	Male (N=55)	Female (N=80)	Significance of %
Enactive Reproducing	10% (5)	25% (20)	2.19**
Enactive Constructive	18% (10)	12% (10)	0.97
Figural Reproducing	0% (0)	19% (15)	3.44*
Figural Constructive	27% (15)	0% (0)	4.94*
Verbal Reproducing	18% (10)	25% (20)	0.96
Verbal Constructive	27% (15)	19% (15)	1.10
Enactive	18% (10)	37% (30)	2.39
Figural	36% (20)	19% (15)	2.22
Verbal	46% (25)	44% (35)	0.23
Reproducing	27% (15)	75% (60)	5.53*
Constructive	73% (40)	25% (20)	5.53*

*Significant at 0.05, 0.01 level of significance
** Significant at 0.05 level of significance

Table 2.3 shows that significance of percentage values for enactive reproducing, figural reproducing, figural constructive, reproducing and constructive with reference to low bodily-kinesthetic intelligence have come out to be significant. Therefore, the null hypotheses are rejected for the above dimensions of learning styles. It means male and female differ each other on aforesaid dimensions.

The hypotheses for enactive constructive, verbal reproducing, verbal constructive, enactive, figural and verbal opted by male and female students have not come out to be significant. Yet there is difference in percentages of learning style but it is not significant. Therefore, for the respective learning styles, hypotheses framed are accepted.

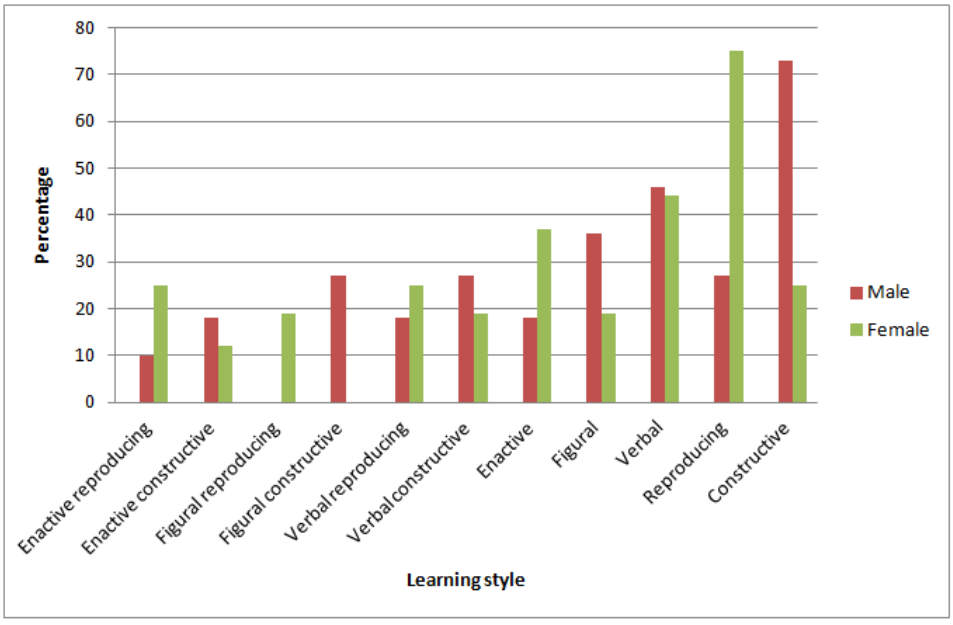

Figure 2.3: Comparison of percentages on the learning styles of male and female students with reference to low bodily-kinesthetic intelligence.

The analysis of percentage values shows that

- Male students prefer figural constructive and constructive learning style than female students.
- Female students with low bodily-kinesthetic intelligence prefer enactive reproducing, figural reproducing and reproducing learning style than their male counterparts.

Sub-Hypothesis 2.4. There is no significant difference between learning style of male and female students with reference to low Musical intelligence.

The results of testing of hypothesis framed to study learning styles with reference to low musical intelligence are shown in table 2.4 and graphical representation has also been depicted in figure 2.4.

Table 2.4: Percentages on the learning styles of male and female students with reference to low musical intelligence

(Total no. of students=135)

Learning style	Male (N=95)	Female (N=40)	Significance of %
Enactive Reproducing	37% (35)	25% (10)	1.36
Enactive Constructive	5% (5)	12% (12)	1.46
Figural Reproducing	5% (5)	12% (5)	1.46
Figural Constructive	26% (25)	0% (0)	3.59*
Verbal Reproducing	16% (15)	39% (15)	2.92*
Verbal Constructive	11% (10)	12% (5)	0.16
Enactive	42% (40)	37% (15)	0.54
Figural	21% (20)	0% (0)	3.16*
Verbal	37% (35)	63% (25)	2.79*
Reproducing	63% (60)	50% (20)	1.41
Constructive	37% (35)	50% (20)	1.41

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

It is evident from Table 2.4 that significance of percentage values for figural constructive, verbal reproducing, figural and verbal learning styles with reference to low musical intelligence have come out to be significant. Therefore, the null hypotheses framed respective to aforesaid dimensions of learning styles are rejected. The hypotheses for learning styles enactive reproducing, enactive constructive, figural reproducing, verbal constructive, enactive, reproducing and constructive have not come out to be significant. Therefore, null hypotheses framed for aforesaid dimensions are accepted.

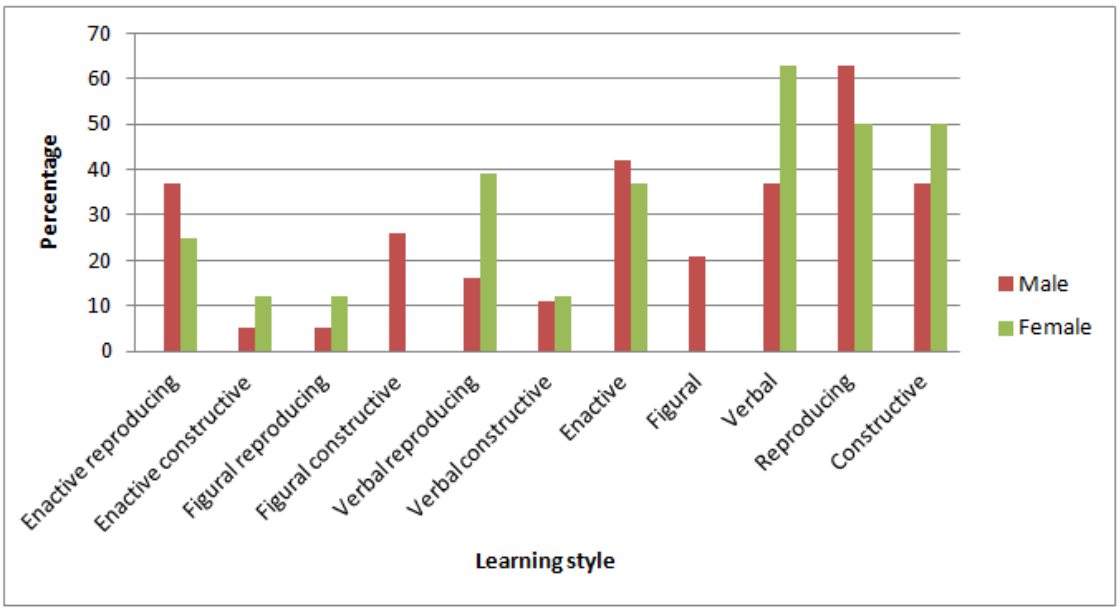

Figure 2.4: Comparison of percentages on the learning styles of male and female students with reference to low musical intelligence.

The analysis of values shows that

- Male students prefer figural constructive and figural learning style than female students.
- Female students with low musical intelligence prefer verbal reproducing and verbal learning style than their male counterparts.

Sub-Hypothesis 2.5. There is no significant difference between learning style of male and female students with reference to low spatial intelligence.

The results of testing of hypothesis framed to study learning styles with reference to low spatial intelligence are shown in table 2.5 and graphical representation has also been illustrated in figure 2.5.

Table 2.5: Percentages on the learning styles of male and female students with reference to low spatial intelligence

(Total no. of students=135)

Learning style	Male (N=80)	Female (N=55)	Significance of %
Enactive Reproducing	25% (20)	27% (15)	0.26
Enactive Constructive	12% (10)	27% (15)	2.23**
Figural Reproducing	6% (5)	0% (0)	1.33
Figural Constructive	20% (15)	9% (5)	1.74
Verbal Reproducing	12% (10)	9% (5)	0.55
Verbal Constructive	25% (20)	28% (15)	0.38
Enactive	37% (30)	45% (25)	0.93
Figural	26% (20)	10% (5)	2.70*
Verbal	37% (30)	45% (25)	0.93
Reproducing	25% (20)	82% (45)	5.95*
Constructive	75% (60)	18% (10)	6.51*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

Table 2.5 shows that significance of percentage values for enactive constructive, figural, reproducing and constructive learning styles with reference to low spatial intelligence have come out to be significant since calculated values are greater than that of tabulated value. Therefore, the null hypotheses are rejected. It means male and female students differ from each other on the above learning styles.

The hypotheses for enactive reproducing, figural reproducing, figural constructive, verbal reproducing, verbal constructive, enactive and verbal learning styles have come out to be significant. Therefore, null hypotheses are accepted.

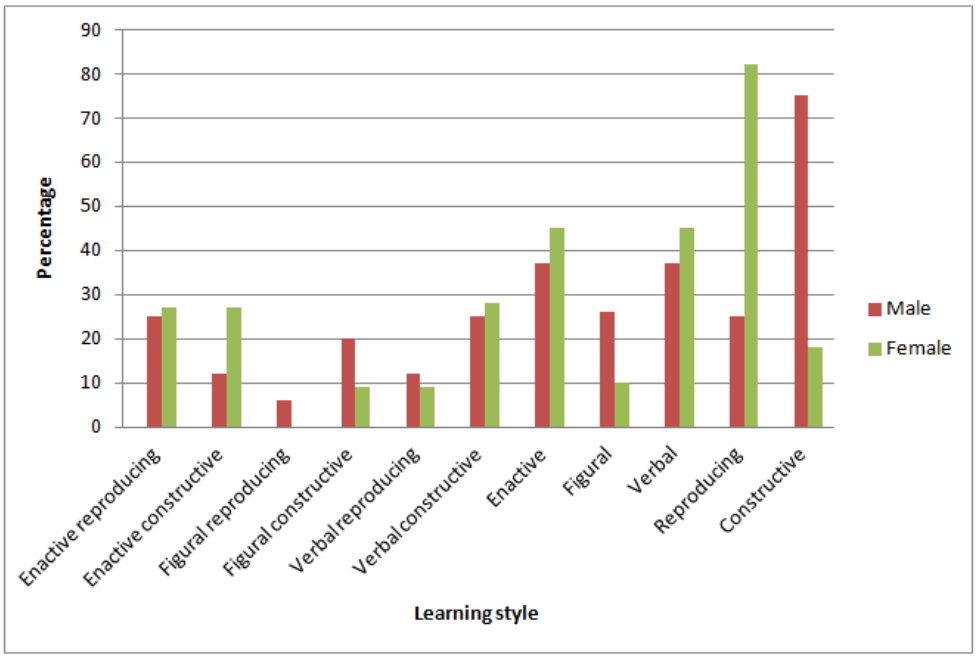

Figure 2.5: Comparison of percentages on the learning styles of male and female students with reference to low spatial intelligence.

The analysis of values shows that

- Male students prefer figural and constructive learning style than female students.
- Female students with low spatial intelligence prefer enactive constructive and reproducing learning style than male students.

Sub-Hypothesis 2.6. There is no significant difference between learning style of male and female students with reference to low Naturalistic intelligence.

The results of testing of hypotheses framed to study learning styles with reference to naturalistic intelligence are shown in table 2.6 and results have been shown with the Bar Graph in figure 2.6.

Table 2.6: Percentages on the learning styles of male and female students with reference to low naturalistic intelligence

(Total no. of students=135)

Learning style	Male (N=40)	Female (N=95)	Significance of %
Enactive Reproducing	25% (10)	21% (20)	0.51
Enactive Constructive	12% (5)	26% (25)	1.81
Figural Reproducing	12% (5)	5% (5)	1.46
Figural Constructive	39% (15)	16% (15)	2.93*
Verbal Reproducing	12% (5)	11% (10)	0.16
Verbal Constructive	0% (0)	21% (20)	3.16*
Enactive	38% (15)	37% (35)	0.11
Figural	24% (10)	26% (25)	0.24
Verbal	38% (15)	37% (35)	0.11
Reproducing	25% (10)	53% (50)	3.01*
Constructive	75% (30)	47% (45)	3.01*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

It is evident from Table 2.6 that significance of percentage values for learning styles figural constructive, verbal constructive, reproducing and constructive learning styles with reference to low naturalistic intelligence have come out to be significant. Therefore, hypotheses are rejected as calculated values are greater than tabulated values.

The hypotheses for learning styles enactive reproducing, enactive constructive, figural reproducing, verbal reproducing, enactive, figural and verbal have not come out to be significant. Therefore, null hypotheses are accepted.

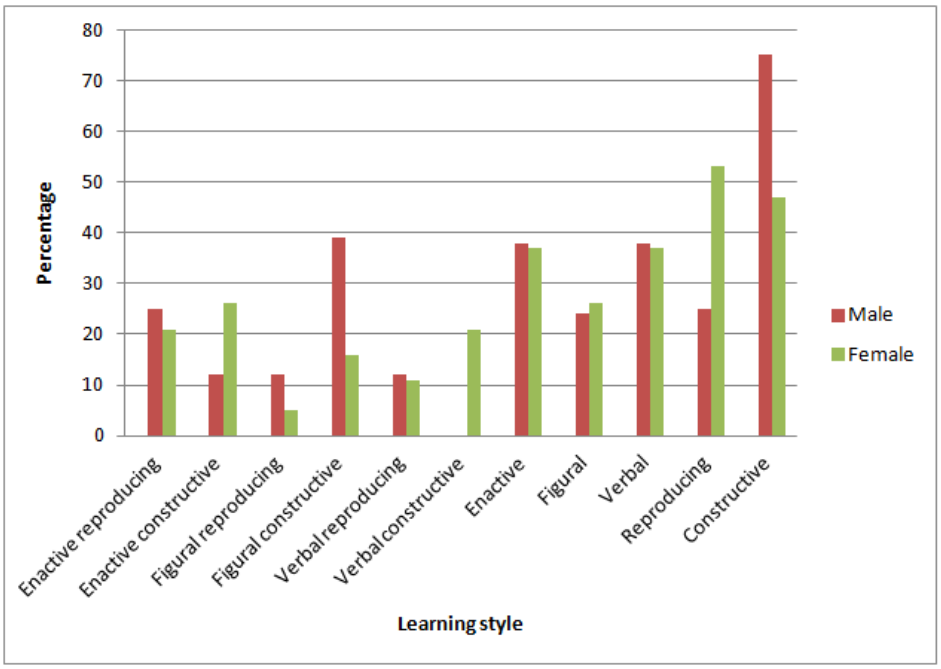

Figure 2.6: Comparison of percentages on the learning styles of male and female students with reference to low naturalistic intelligence.

The analysis of values shows that

- Male students prefer figural constructive and constructive learning style than female students.
- Female students with low naturalistic intelligence prefer verbal constructive and reproducing learning style than male students.

Sub-Hypothesis 2.7. There is no significant difference between learning style of male and female students with reference to low Interpersonal intelligence.

The results of testing of hypothesis framed to study learning styles with reference to low interpersonal intelligence are shown in table 2.7 and graphical representation has also been depicted in figure 2.7.

Table 2.7: Percentages on the learning styles of male and female students with reference to low interpersonal intelligence

(Total no. of students=135)

Learning style	Male (N=80)	Female (N=55)	Significance of %
Enactive Reproducing	50% (40)	27% (15)	2.67*
Enactive Constructive	23% (10)	45% (25)	2.69*
Figural Reproducing	0% (0)	9% (5)	8.82*
Figural Constructive	1% (5)	0% (0)	0.74
Verbal Reproducing	1% (5)	0% (0)	0.74
Verbal Constructive	25% (20)	19% (10)	0.82
Enactive	50% (40)	36% (50)	1.61
Figural	12% (10)	9% (5)	0.55
Verbal	38% (30)	55% (30)	1.95
Reproducing	63% (50)	36% (20)	3.09*
Constructive	37% (30)	64% (35)	3.09*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

Table 2.7 shows that significance of percentage values for enactive reproducing, enactive constructive, figural reproducing, reproducing and constructive learning styles with reference to low interpersonal intelligence have come out to be significant. Therefore, null hypotheses framed respective to aforesaid dimensions are rejected. The hypotheses for learning styles figural constructive, verbal reproducing, verbal constructive, enactive, figural and verbal have not come out to be significant. Therefore, null hypotheses framed for the above dimensions are accepted.

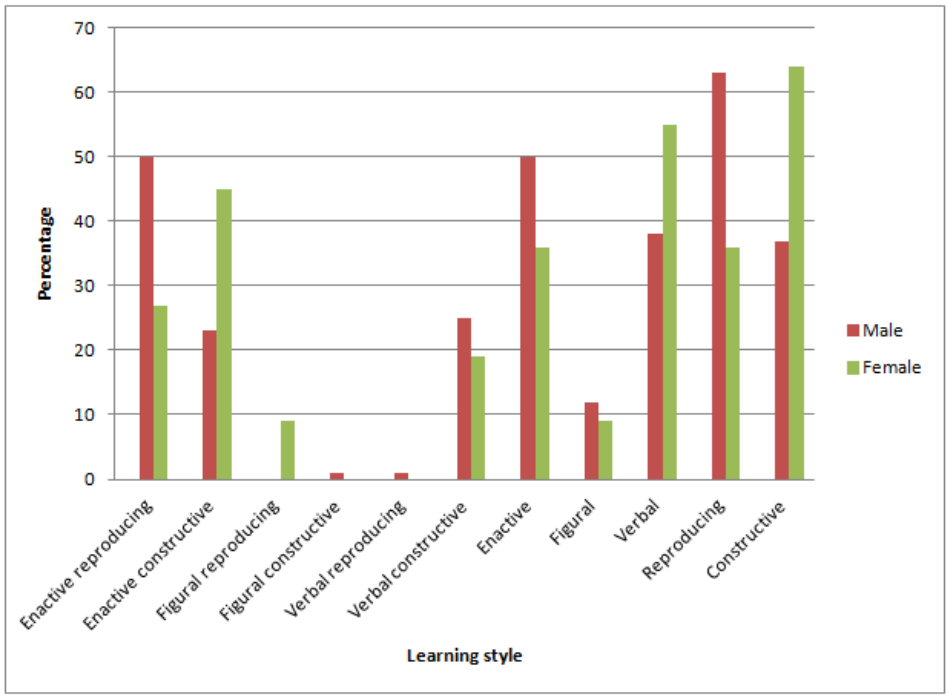

Figure 2.7: Comparison of percentages on the learning styles of male and female students with reference to low interpersonal intelligence.

The analysis of percentage values shows that

- Male students prefer enactive reproducing and reproducing learning style than female students.
- Female students with low interpersonal intelligence prefer enactive constructive, figural reproducing and constructive learning style than male students.

Sub-Hypothesis 2.8. There is no significant difference between learning style of male and female students with reference to low Intrapersonal intelligence.

The results of testing of hypotheses framed to study learning styles with reference to intrapersonal intelligence are shown in table 2.8.

Table 2.8: Percentages on the learning styles of male and female students with reference to low intrapersonal intelligence

(Total no. of students=135)

Learning style	Male (N=85)	Female (N=50)	Significance of %
Enactive Reproducing	53% (45)	20% (10)	3.81*
Enactive Constructive	18% (15)	30% (15)	1.63
Figural Reproducing	12% (10)	0% (0)	2.58**
Figural Constructive	0% (0)	10% (5)	3.01*
Verbal Reproducing	5% (5)	0% (0)	1.62
Verbal Constructive	12% (10)	40% (20)	3.81*
Enactive	47% (40)	30% (15)	1.96
Figural	24% (20)	20% (10)	0.54
Verbal	29% (25)	50% (25)	2.47**
Reproducing	59% (50)	20% (10)	4.45*
Constructive	41% (35)	80% (40)	4.45*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

It is evident from Table 2.8 that significance of percentage values for learning styles enactive reproducing, figural reproducing, figural constructive, verbal constructive, verbal, reproducing and constructive learning styles with reference to low intrapersonal intelligence have come out to be significant. Therefore, hypotheses are rejected which means male and female students differ from each other on aforesaid dimensions.

The hypotheses for learning styles enactive constructive, verbal reproducing, enactive and figural have not come out to be significant. Therefore, null hypotheses framed for the above learning styles are accepted. The results are shown with the help of bar graph in figure 2.28.

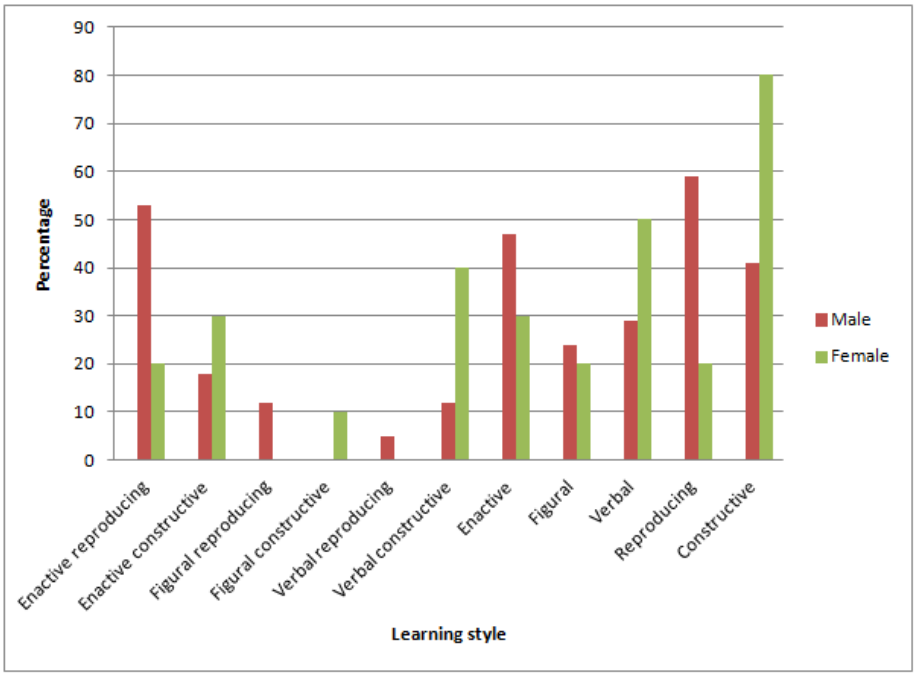

Figure 2.8: Comparison of percentages on the learning styles of male and female students with reference to low intrapersonal intelligence.

The analysis of percentage values shows that

- Male students prefer enactive reproducing, figural reproducing and reproducing learning style than female students.
- Female students with low intrapersonal intelligence prefer figural constructive, verbal constructive, verbal and constructive learning style than male students.

Sub-Hypothesis 2.9. There is no significant difference between learning style of male and female students with reference to low Existential intelligence.

The results of testing of hypothesis framed to study learning styles with reference to low existential intelligence are shown in table 2.9 and graphical representation has also been depicted in figure 2.9.

Table 2.9: Percentages on the learning styles of male and female students with reference to low existential intelligence

(Total no. of students=135)

Learning style	Male (N=75)	Female (N=60)	Significance of %
Enactive Reproducing	27% (20)	25% (15)	0.27
Enactive Constructive	7% (5)	17% (10)	1.84
Figural Reproducing	13% (10)	8% (5)	0.94
Figural Constructive	13% (10)	8% (5)	0.94
Verbal Reproducing	7% (5)	17% (10)	1.84
Verbal Constructive	33% (25)	25% (15)	1.03
Enactive	40% (30)	25% (15)	1.87
Figural	40% (30)	8% (5)	4.30*
Verbal	20% (15)	67% (40)	5.61*
Reproducing	27% (20)	75% (45)	5.64*
Constructive	62% (25)	25% (15)	5.64*

*Significant at 0.05, 0.01 level of significance

** Significant at 0.05 level of significance

It is evident from Table 2.9 that significance of percentage values for figural, verbal, reproducing and constructive learning styles with reference to low existential intelligence have come out to be significant. Therefore, the hypotheses framed respective to aforesaid learning styles are rejected as calculated values are greater than tabulated values.

The hypotheses for learning styles enactive reproducing, enactive constructive, figural reproducing, figural constructive, verbal reproducing, verbal constructive and enactive have not come out to be significant. Therefore, null hypotheses framed for the above learning styles are accepted.

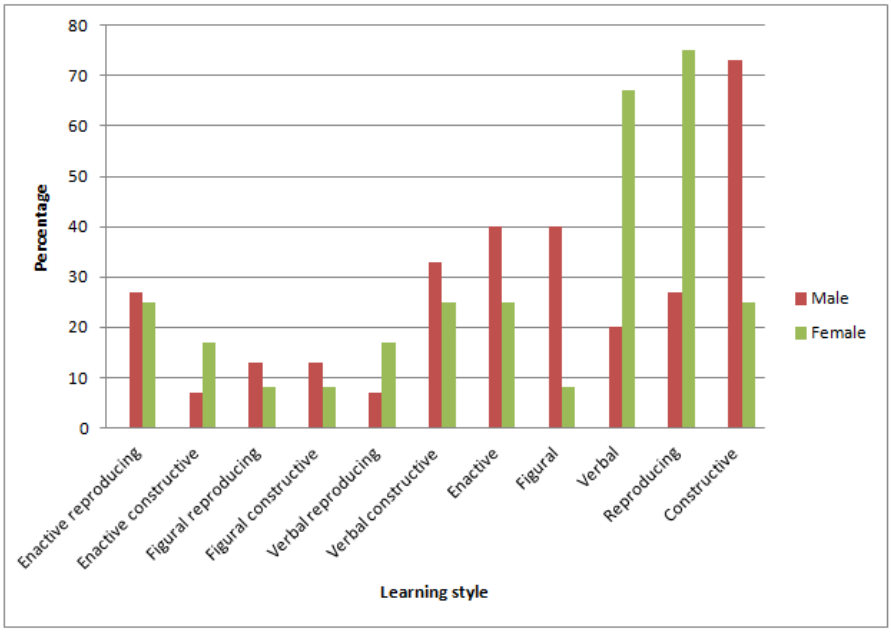

Figure 2.9: Comparison of percentages on the learning styles of male and female students with reference to low existential intelligence.

From the figure 2.9, the analysis of percentage values shows that

- Male students prefer figural and constructive learning style than female students.
- Female students with low existential intelligence prefer verbal and reproducing learning style than male students.

Findings of the study:

The key findings of the study are listed in summarized form as below in table 2.10 and table 2.11:

Table 2.10: Preferences of learning style with reference to high multiple intelligence and its dimensions

Factor	**Learning style preferences by males**	**Learning style preferences by females**
1.High Multiple Intelligence	Verbal constructive, verbal and reproducing	Figural reproducing, figural and constructive
1.1 High linguistic intelligence	Enactive reproducing, figural constructive and constructive	Verbal reproducing, verbal constructive, verbal and reproducing
1.2 High logical intelligence	Enactive constructive, figural reproducing, figural and constructive	figural reproducing, verbal reproducing, verbal and reproducing
1.3 High bodily-kinesthetic intelligence	Figural constructive, verbal constructive, enactive and reproducing	Figural reproducing, verbal reproducing, figural, verbal and constructive
1.4 High musical intelligence	Reproducing	Figural constructive, verbal and constructive
1.5 High spatial intelligence	Enactive constructive, figural and constructive	Figural reproducing, verbal and reproducing
1.6 High naturalistic intelligence	Enactive reproducing and reproducing	Figural constructive, verbal constructive and constructive
1.7 High interpersonal intelligence	Figural reproducing, verbal reproducing, figural and reproducing	Verbal constructive, verbal and constructive
1.8 High intrapersonal intelligence	Enactive constructive, figural and constructive	Verbal reproducing, verbal and reproducing
1.9 High existential intelligence	Enactive reproducing and enactive	Enactive constructive and figural

Table 2.11: Preferences of learning style with reference to low multiple intelligence and its dimensions

Factor	**Learning style preferences by males**	**Learning style preferences by females**
2. Low multiple intelligence	Figural constructive, verbal constructive, figural and constructive	Enactive constructive, verbal reproducing, enactive and reproducing
2.1 Low linguistic intelligence	Verbal constructive, enactive and constructive	Enactive constructive, figural reproducing and reproducing
2.2 Low logical intelligence	Verbal reproducing, figural and constructive	Enactive constructive and reproducing
2.3 Low bodily-kinesthetic intelligence	Figural constructive and constructive	Enactive reproducing, figural reproducing and reproducing

2.4 Low musical intelligence	Figural constructive and figural	Verbal reproducing and verbal
2.5 Low spatial intelligence	Figural and constructive	Enactive constructive and reproducing
2.6 Low naturalistic intelligence	Figural constructive and constructive	Verbal constructive and reproducing
2.7 Low interpersonal intelligence	Enactive reproducing and reproducing	Enactive constructive, figural reproducing and constructive
2.8 Low intrapersonal intelligence	Enactive reproducing, figural reproducing and reproducing	Figural constructive, verbal constructive, verbal and constructive
2.9 Low existential intelligence	Figural and constructive	Verbal and reproducing

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