



## Research Paper

# Surveying Class-Based Variance in Dominant Learning Styles of Indian Students

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**ABSTRACT:** Learning Styles are preferential ways in which students absorb, retain, process and comprehend information. The research and discourse around learning style preferences and the determinants continue to be underdeveloped. This paper has sought to find links between the socioeconomic backgrounds of students and their learning style preferences. Primary research has been conducted in three schools that host students from different socioeconomic backgrounds in rural and urban parts of India. The results of this survey show correlations between the economic background of students and their Learning Style Preferences. The study of learning styles is important to develop teaching methods and curriculum. A uniform teaching style has been found to exclude students with learning style preferences that are incompatible with that particular teaching style. Teachers and curriculum-developers need to cater to students with different learning styles, especially if they belong to economically backward communities and regions by modifying their methods of instruction and teaching. The paper has also sought to provide policy recommendations that seek to improve teaching methods through the cognizance of learning styles to facilitate long-term learning and holistic education.

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## I. INTRODUCTION

Learning styles refer to a range of theories that aim to account for differences in individuals' learning. Even those some of these theories differ in how learning styles can be categorized and defined, a common concept is that individuals differ in how they learn<sup>1</sup>.

There are multiple ways of classifying learning styles. In his book, 'Experiential Learning', David Kolb classified students into four groups- Accommodators, Convergers, Disruptors, and Assimilators according to their behavior in the classroom<sup>2</sup>. A similar classification was made by Peter Honey and Alan Mumford who divided people into Activists, Theorists, Reflectors and Pragmatists<sup>3</sup>. Even though this assessment was based on the behavior shown by employees, the system introduced by them is most widely used in the United Kingdom to assess Learning Styles. Walter Burke Barbe introduced the concept of 'Learning Modalities' which assess Learning Styles according to the preferences of students and classified them into Visual, Auditory and Kinesthetic Modalities<sup>4</sup>. This was later elaborated upon by Neil Flemming who divided Learning Styles into Visual (preference for seeing objects and learning), Auditory/Aural (learning through listening), Physical (learning through carrying out physical tasks), and Social (learning through observing the behavior of others) (Flemming, 2014). This classification known as the VARK classification has further been expanded to include Verbal (learning through speaking), Logical (learning by interpreting logical statements) and Solitary (learning through self-introspection, usually done in private).

It is extremely important to understand the learning styles of different students in the classroom. This helps educators understand and account for the difference in learning styles in their curriculum and teaching methods to make the classroom environment more conducive to all students. This is even more important in the context of the education system of many countries, including that of India. The curricula and teaching methods conventionally used are extremely homogeneous and fail to cater to the diversity in learning styles amongst students of different backgrounds. This leads to the needs of some needs being catered to, whilst some students get excluded to varying degrees from the process of learning itself. For example, if a linear teaching method is used, which is focused only around aural communication, the classroom would be less conducive and the subject matter less interesting for students who have a different learning style preference. This also creates an unequal playing field amongst students when they compete for opportunities in school and later in life. Therefore, curricula and teaching methods must be formulated in such a way that they cater to the learning styles of all students in the classroom<sup>5</sup>.

An original survey was undertaken to find a link between the economic background and learning style amongst students. The respondents aged 9-13 years. The survey was conducted in 3 groups of students- urban privileged students,

<sup>1</sup>Coffield, et. al., 2004

<sup>2</sup>Kolb, 1984

<sup>3</sup>Honey & Mumford, 2006

<sup>4</sup>Barbe, 1979

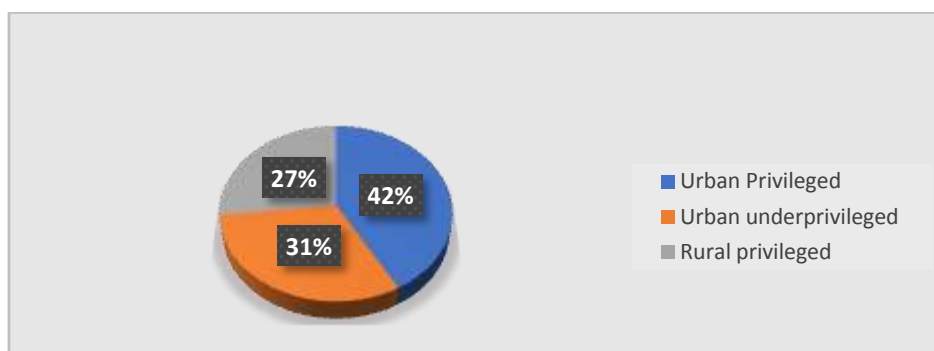
<sup>5</sup>Boneva & Mihova, 2014

urban underprivileged students, and rural privileged students. The total sample size of the survey was 426 students across different economic backgrounds. Learning Styles were classified into seven categories according to the Modified VARK Model. This was conducted to find correlations between economic background and learning style preferences.

The results showed a variation in the Learning Style Preferences of students between economically privileged and underprivileged backgrounds and between students from Urban and Rural regions. Whilst economically affluent students prefer Social Learning, students from economically weaker backgrounds prefer Physical Learning. Students from urban regions were found to prefer Visual and Aural Learning as well.

## II. METHODOLOGY

This paper has combined both primary and secondary research. The respondents aged 9-13 years. Primary research was conducted in three schools in India out of which two schools were schools that cater to economically backward communities in urban and rural India respectively. One school was surveyed which caters to the economically affluent community in urban India. These schools were selected to determine the link between socio-economic background and learning preferences of students. The number of students surveyed from 'urban privileged', 'urban underprivileged', and 'rural underprivileged' in the research was 178, 134 and 114 respectively. Below chart shows the breakdown of the students surveyed.



Data was collected through questionnaires with 18 questions that were presented in Hindi and English to be answered by students<sup>6</sup>. Verbal consent was obtained to use the collected data for this research paper. Seven Learning Styles were identified (Physical, Visual, Aural, Social, Logical, Verbal and Solitary) to classify students. Every question was given a color code corresponding to a learning style. However, the questionnaire was administered without color. The respondents were asked to answer each statement with a '0', '1' or '2' which represented that the statement was 'nothing like them', 'partially like them' and 'very much like them' respectively. The highest score amongst all colors represents the learning style preferences of students. A tie in scores between two colors indicates that the student has more than one favored learning style. The results of each school were then tabulated to be compared with students of other socio-economic backgrounds to find similarities and discrepancies. Research has also linked the cognizance of learning styles and usage of subjective teaching methods to higher class participation and better learning<sup>7</sup>. Even though Learning Styles are a new subject of study in India, this paper has sought to analyze data from previous research to draw comparisons and conclusions. Research conducted<sup>8</sup> in Iran and Pakistan that sought to draw a link between Learning Style Preferences and Socio-Economic background was analysed.

## III. BACKGROUND

Coffield, et. al., researched in 2004 that examined 13 models around learning styles to evaluate the most effective teaching techniques. It concluded that students become more motivated to learn when they know more about their strengths and weaknesses as learners. Therefore teachers should respond to students' strengths and weaknesses to modify techniques that could facilitate more comprehensive learning. The usage of relevant teaching techniques was also found to make students more independent in their learning. The negative consequences of lower levels of communication between the teacher and students were found to be counterbalanced because of the use of relevant teaching techniques<sup>9</sup>. Research conducted at Indiana University in 2010 concluded that the knowledge of the socio-economic background, gender and learning style preferences of students would enhance the effectiveness of teachers in classrooms and facilitate lifelong learning. Students were classified based on their biological attributes, degree of privilege, positioning for learning and preferences. It stated that all teachers should respond to students' readiness, knowledge, understanding, and skills related to learning. Readiness is said to be impacted by cognitive proficiency, earlier school and life experiences, and attitudes about school and learning. Thoughtful pre- and on-going assessment of student's backgrounds and readiness could be used to determine teaching methodology and set up adequate challenges for students<sup>10</sup>.

<sup>6</sup>Ref. Appendix A

<sup>7</sup>Ellington & Benders, 2012

<sup>8</sup>Akhtar, 2011; Huseynpur, 2015

<sup>9</sup>Coffield, et. al., 2004

<sup>10</sup>Center on Education & Lifelong Learning, 2010

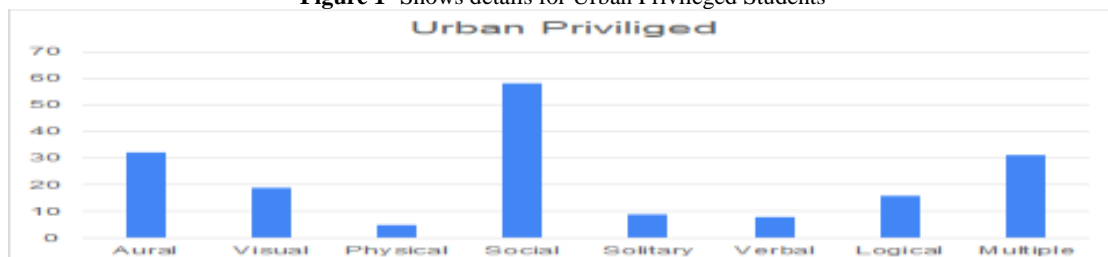
Research on learning styles in developing countries is very underdeveloped. Moreover, the different classifications of Learning Styles make a comparison between different research difficult. Husseyenpur, et. al., researched in 2015 in Iran to find links between the socio-economic background of students and their Learning Style Preference. Learning styles and were classified into 'Participative' and 'Independent' depending on the students' involvement in group and class activities. Similar research was conducted<sup>11</sup> in Pakistan in 2011 which sought to determine the link between socio-economic background and Learning Styles. Learning styles were classified into 'Independent' and 'Participant' along lines similar to that in the research by Husseyenpur, et. al. Research by Akhtar, Z. also sought to draw links between the regions that students live in their choice of Learning Styles.

#### IV. SURVEY RESULTS

##### 1. Urban Privileged Students

Table 1		
Learning Style	Number of students	Percentage of students
Aural	32	18%
Visual	19	11%
Physical	5	3%
Social	58	33%
Solitary	9	5%
Verbal	8	4%
Logical	16	9%
Multiple	31	17%
Total	178	100%

**Figure 1-** Shows details for Urban Privileged Students



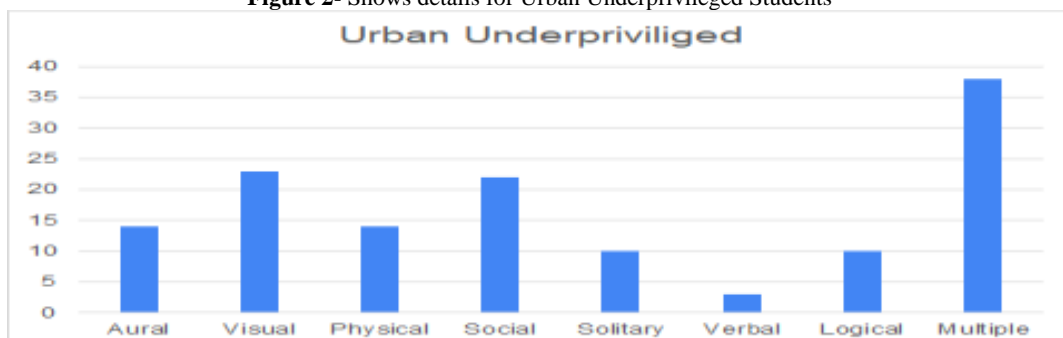
##### 2. Urban Underprivileged Students

Table 2		
Learning Style	Number of students	Percentage of students
Aural	14	10%
Visual	23	17%
Physical	14	10%
Social	22	16%
Solitary	10	7%
Verbal	3	2%
Logical	10	7%

<sup>11</sup>By Akhtar, Z

Multiple	38	28%
Total	134	100%

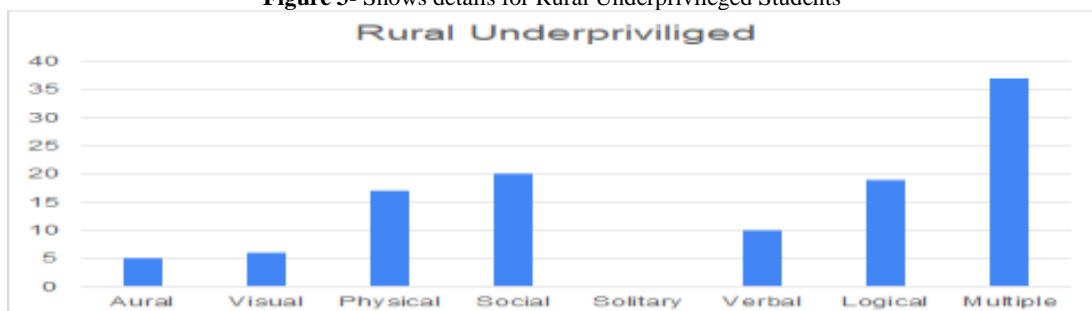
Figure 2- Shows details for Urban Underprivileged Students



### 3. Rural Underprivileged Students

Table 3		
Learning Style	Number of students	Percentage of students
Aural	5	4%
Visual	6	5%
Physical	17	15%
Social	20	18%
Solitary	0	0%
Verbal	10	9%
Logical	19	17%
Multiple	37	32%
Total	114	100%

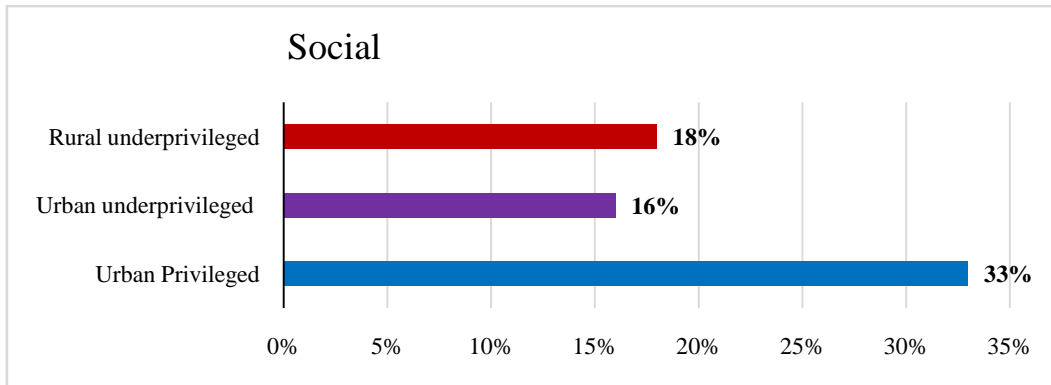
Figure 3- Shows details for Rural Underprivileged Students



## V. DISCUSSION

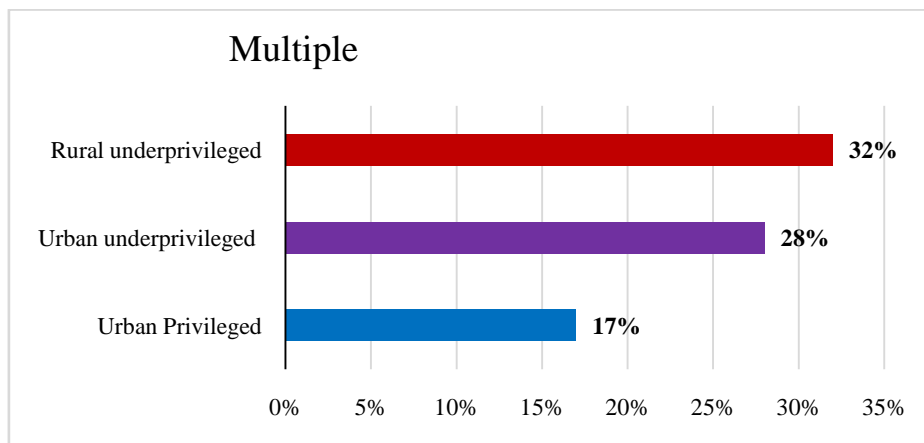
Results from this survey show variations in learning style preferences between students from privileged and underprivileged backgrounds, as well as from rural and urban regions of the country. The maximum percentage of students

(33%) from economically affluent backgrounds prefer social learning styles<sup>12</sup>. Social Learning implies that these students prefer to learn by observing the behaviour around them. Below graph provides details of Social Learning style.

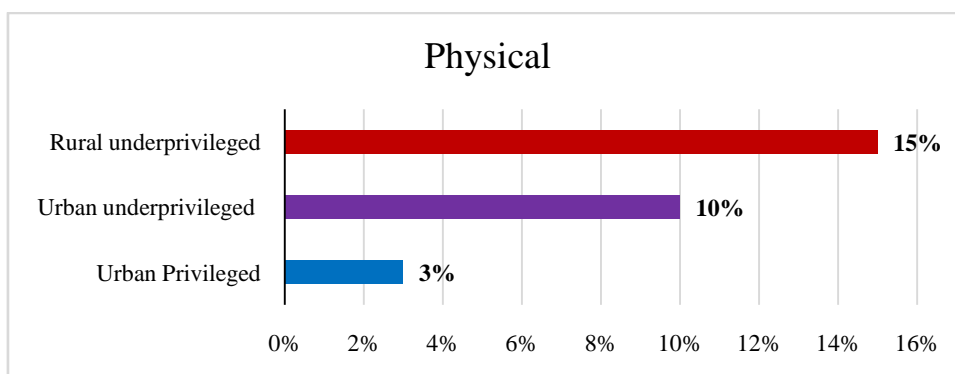


Economically affluent families and communities also tend to be more socially progressive in India and are surrounded by a more informed discourse that is relevant to students' education.

Economically privileged parents are also generally more educated than those who are from economically weaker sections of society. This allows students to learn more from their immediate surroundings that consist of their families and communities which explains their preferences for social learning styles. Students from underprivileged backgrounds have a higher propensity to have multiple learning style preferences (28% & 32% in urban and rural areas respectively) as compared to students from privileged backgrounds. Below graph shows details of the Multiple learning style.

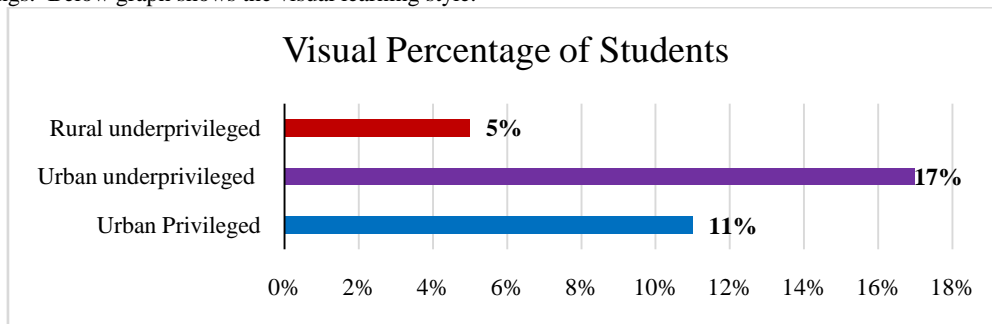


This is because students from underprivileged backgrounds are much more likely to be exposed to housework and other forms of labor at an early age, which makes them equally receptive to multiple learning styles. The exposure to labor also contributes to a higher preference for Physical learning styles for students from underprivileged backgrounds irrespective of the region (10% & 15% in urban and rural areas respectively) as compared to students from urban privileged backgrounds (3%). Below graph shows the details of the Physical learning style.

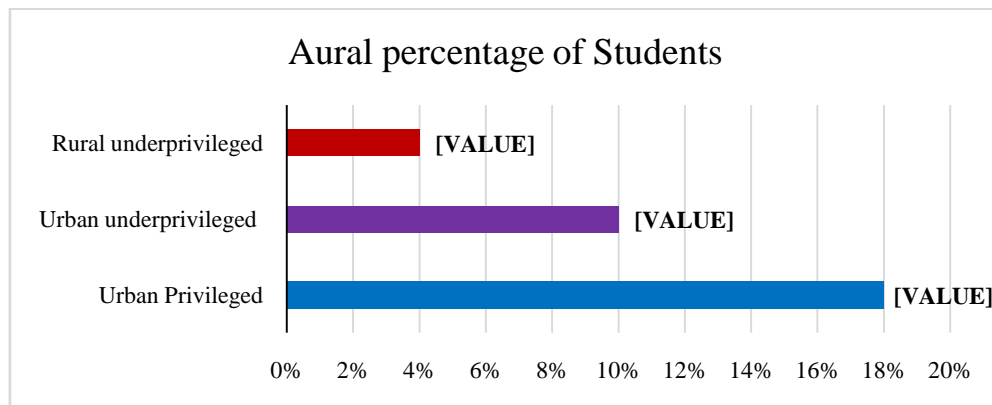


<sup>12</sup>Ref. Table 1

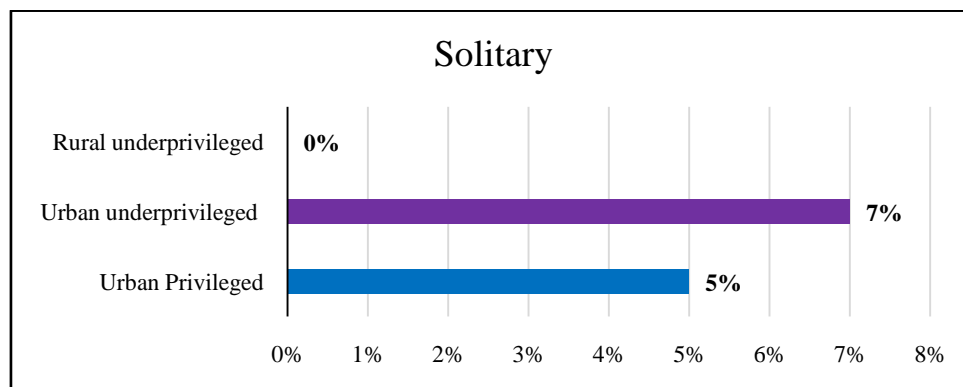
All urban students, irrespective of their economic backgrounds are surrounded by more evolved and informed discourse than students from rural areas. The higher rates of preference for Visual Learning by urban students (11% & 17% in privileged and underprivileged backgrounds respectively) than rural students (5%) is reflective of this, because visual learning, or learning from what is seen is also influenced by the development of social interactions and discourse in their surroundings. Below graph shows the visual learning style.



This is indicated at a similar level through the higher rates of preference for Aural Learning styles among urban students (18% & 10% in privileged and underprivileged backgrounds respectively) as compared to rural students (4%). Below graph represents the Aural percentage amongst the students.



This research has sought to expand the classification of Learning Styles into more specific Styles than previous research conducted in this field. However, certain similarities were found in the results of this survey and the ones conducted by Akhtar, Z. in Pakistan in 2011 and Husseympur, et al. in Iran in 2015. Students from privileged or stronger socioeconomic backgrounds showed a preference for ‘Solitary’ or ‘Independent’ Learning across all surveys students from underprivileged or economically weaker backgrounds showed a preference towards Participative Learning in urban regions. However, discrepancies emerged between the findings of this research and the one conducted by Akhtar, Z. in the learning preferences of underprivileged students from rural backgrounds. Findings of this research indicated that students from rural underprivileged background prefer Participative Learning whereas Akhtar’s research indicated that students from similar backgrounds prefer Independent Learning. This discrepancy is caused by the difference in the socio-economic, cultural, technological and educational environment between Pakistan and India. Below graph represents the Solitary style of learning.



## VI. CONCLUSION

The teaching methods used and the curriculum followed in many countries including India, especially in Public Schools is standardized. The lack of contextualization leads to an imbalanced impact of teaching and education. The students

whose learning style is compatible with the teaching methods used in the classroom benefit more out of their education than those students whose learning style is not as compatible. The implementation of teaching methods that cater to 'social learning styles' should be followed in urban regions because of the higher rates of preference of social learning styles in urban India amongst students irrespective of their economic background, according to this survey<sup>13</sup>. Similarly, the teaching methods in rural India should be mixed because most students have reported having multiple learning style preferences through this survey<sup>14</sup>. Teaching style should be more compatible to Social and Solitary Learning Styles for students who are from economically stronger backgrounds<sup>15</sup> whereas teaching methods for underprivileged students should be exposed to multiple teaching styles because of their preference for multiple learning styles<sup>16</sup>.

Conducting instruction through the computer or the web can also be beneficial to some students with certain learning style preferences. Moreover, e-learning and the implementation of technological education is in-general beneficial in today's environment. Using computers in education has received significant attention in recent years with the introduction of smart classes with the growth in usage of Smart-Classes, even in Public schools in India<sup>17</sup>. Computer Associated Instruction (CIA) Programs should be designed in a way that they can account for and equally reach out to students with different learning style preferences<sup>18</sup>.

Students cannot often cope with different subjects, which remains one of the biggest challenges in education. Learning styles indicate an individual's preferential focus on different types of information, the different ways of perceiving information, and the rate of understanding information<sup>19</sup>. Teachers and curriculum developers need to be cognizant of these learning styles and the socio-economic background to students. Having an understanding of the learning style preferences of students can provide effective learning strategies for teachers to use. Students who share a learning style that is attuned with the teacher remember information longer and are more optimistic about learning irrespective of the subject matter<sup>20</sup>. The inclusion of socio-economic background as a parameter that influences curriculum and teaching methods is also important to choose the right methods in different schools according to the needs of students. Teachers should be aware of the level of privilege that students possess to ensure the effectiveness of teaching. The influence of learning style and economic background on teaching methods and curriculum not only increases their effectiveness but also incentivize and motivate students to take more interest in their academics. Curriculum-Developers, Policy-Makers, and Teachers should be cognizant about subjective variations in the ability of students to learn and be attentive according to their learning styles to increase the effectiveness of education.

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<sup>13</sup>Ref. Figure 1 & Figure 2

<sup>14</sup>Ref. Figure 3

<sup>15</sup>Ref. Figure 1

<sup>16</sup>Ref. Figure 2 & Figure 3

<sup>17</sup>Manohari & Shenbagavadivu, 2018

<sup>18</sup>Kahtz & Kling, 1999

<sup>19</sup>Lohrey-Posey, 2003

<sup>20</sup>Lohri-Posey, 2003

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#### **Appendix A- Questions Raised to the Students as Part of the Survey**

Answer each statement in the following manner:

0 - the statement is nothing like me; 1 - the statement is partially like me;

2 - the statement is very much like me

1 You like sports.

2 You enjoy dancing.

3 You solve problems by talking about solutions.

4 You whistle to music.

5 You enjoy meeting your friends.

6 You like playing games.

7 You like to play hide and seek.

8 You can sing.

9 You like to improve your personality regularly.

10 You can follow instructions well.

11 You like making rhymes and puns.

12 You have a good sense of colour.

13 You pay attention to the sounds of various things.

14 You like books with lots of diagrams or illustrations.

15 You easily express yourself.

16 You are a leader.

17 You like drawing.

18 You are good with calculations - addition and subtraction.

Red - Physical Learning Style

Orange - Visual Learning Style

Purple - Aural Learning Style

Green - Social Learning Style

Blue - Logical Learning Style

निम्नलिखित तरीके से प्रत्येक कथन का उत्तर दें:

0 - यह मेरा वर्णन नहीं करता है; 1 - बयान आंशिक रूप से मेरा वर्णन करता है ;

2 - यह पूरी तरह से मेरा वर्णन करता है

१. मुझे खेल-कूद में रुचिर खता / रखती हु।

२. तुम्हें नृत्य करने में लाभमहसूस होता है।

३. आपसमस्याओं का समाधान बात-चीत से करते हैं।

४. गाना सुनने पर आप उसके साथ गुनगुनाते हैं।

५. आपको अपने दोस्तों से मिलने में लाभमहसूस होता है।

६. आपको कंप्यूटर गेम खेलना पसंद है।

७. आपको लुका-छिपी खेलना पसंद है।

८. आप गासकते हैं।

९. आप नियमित रूप से अपने व्यक्तित्व में सुधार करना पसंद करते हैं।

१०. आप निर्देशों का अच्छी तरह से पालन करसकते हैं।

११. आपको तुकबंदी और वाक्य बनाना पसंद है।

१२. आपको रंगों की अच्छी समझ है।

१३. आप विभिन्न चीजों की आवाज़ पर ध्यान देते हैं।

१४. आपको बहुत सारे चित्र या चित्रवाली किताबें पसंद हैं।

१५. आप आसानी से खुदको व्यक्त करते हैं।

१६. आप एकनेता हैं।

१७. आपको चित्र बनाना पसंद है।

१८. आप गणित में अच्छे हैं- जोड़ और घटाव।

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