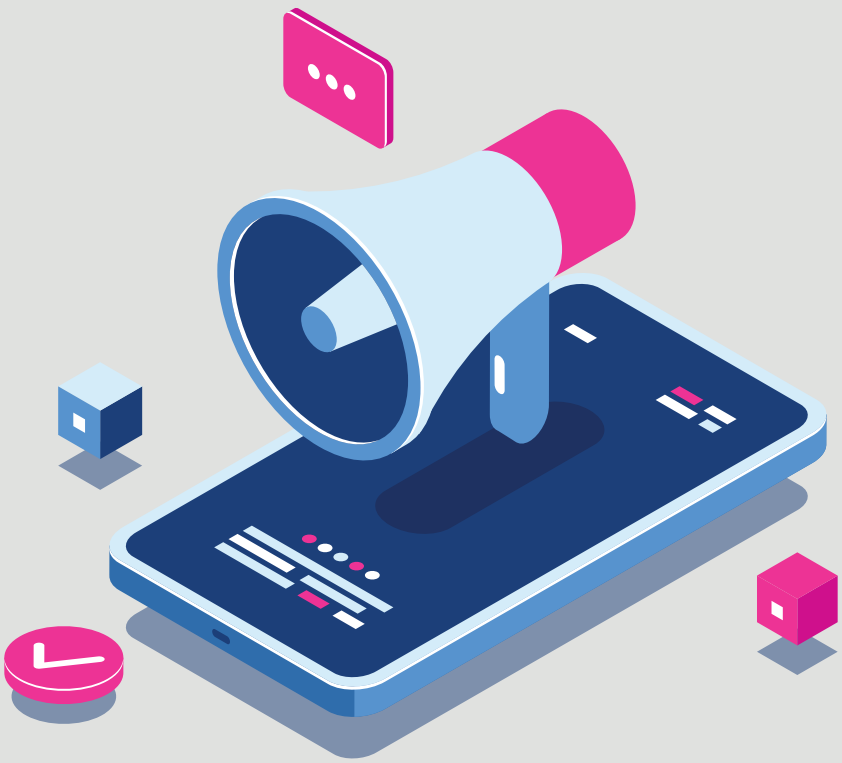
SAMAANTA

SAMAANTA REPORT

VIDYA SCHOOL



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How the test works

The Samaanta Implicit Association Test (IAT) measures the strength of associations between demographic groups (e.g., black people, gay people) and evaluations (e.g., good, bad) or stereotypes (e.g., athletic, clumsy). The main idea is that making a response is easier when closely related items share the same response key.

It works through comparing various external data that can be analyzed to work out any hidden biases, like time taken per question. (Source: Project Implicit, harvard.edu)

Categories

Throughout the course of the test, we explore a number of categories, which are as follows:

- **Sports**
- **Jobs**
- **School subjects**
- **Clothes**
- **Feelings**

Based on these categories, analysis is conducted along the lines of:

- **Age**
- **Gender**

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Summary of findings

Our overall analysis of the data gained from your students' participation in the survey is that the age at which the survey was conducted was crucial: students aged 13-14 were more likely to fall prey to preconceived notions of gender they have had while the age group of 17-19 were more balanced in their approach. The caveats of clothing and jobs were the categories where biases were displayed most palpably: thereby demonstrating the manifestation of gender biases in routine elements of the public sphere. The positive inference from the data is two fold: firstly, with age students become more reflexive and less likely to succumb to gender stereotypes. Secondly, based on a gender analysis, the terms of answer choice, i.e. association of categories with a girl/-boy bias showed little distinction among genders.

Therefore, the most important takeaways from this test are as follows:

When the sample is analyzed based on gender, there is a tendency among males to associate jobs such as military, fireman and pilot only with men showing a degree of sexism and prejudice that may be conscious or subconscious in the sphere of work.

When this sample is analysed based on age, there is evidence of an evolving gender-sensitive youth where even if, at the age of 13 they seem to believe in certain gender stereotypes, by 19 they have matured to develop far more gender-inclusive worldviews.

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Presentation of raw data:

Average Time Taken on Survey

117.68

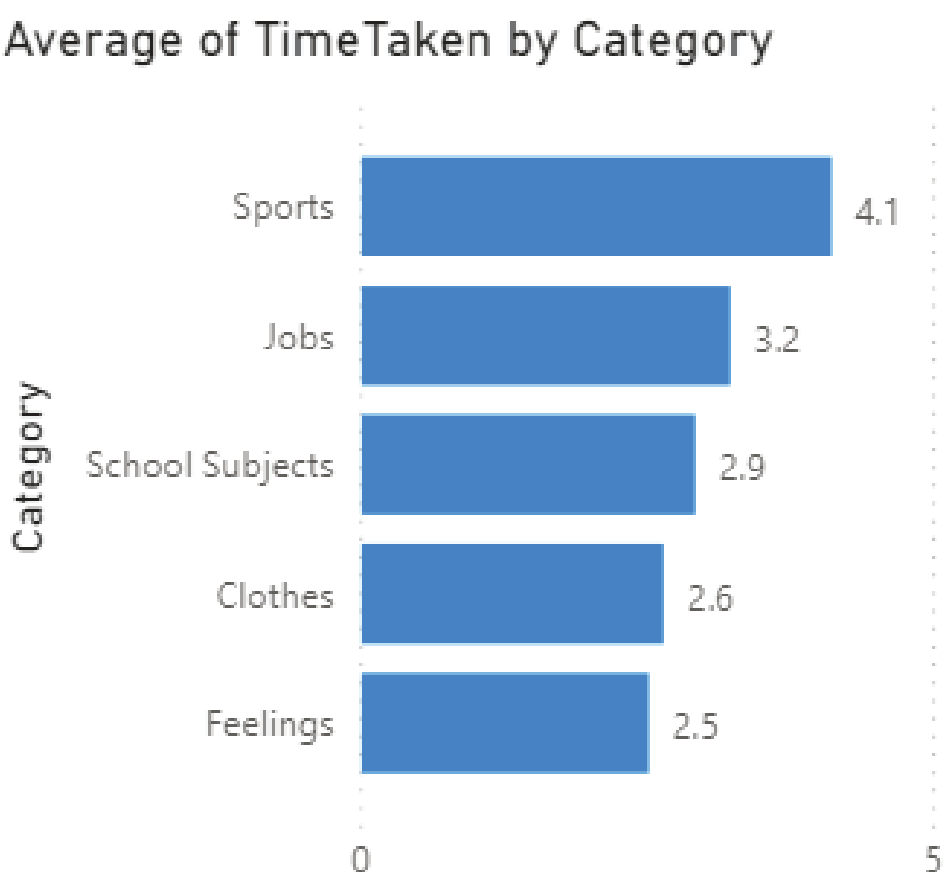

Fig 1.1.- Average time taken by category (in seconds)

Without considering gender, the average time taken by participants to complete the test was approximately 118 seconds. If gender is considered, females took more time and took 119 seconds to complete the test while males took 116 seconds. The longer it takes for individuals to complete the test, the stronger their tendency to make implicit associations.

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01 *Football*
02 *Cricket Bat and Ball*
03 *Tennis Racket & Ball*
04 *Gymnastics*
05 *Net with Volleyball*
06 *Race Car with Driver*
07 *Half Trousers*
08 *Frock*
09 *Round Neck T Shirt*
10 *Pant*
11 *Kurti*
12 *Shoes*
13 *Tiara*
14 *Ponytail*
15 *Beard*
16 *Ear Rings*
17 *Stethoscope*
18 *Nurse*
19 *Teacher*
20 *Manicure*
21 *News*
22 *Paint Brush*
26 *Miner*
27 *Fireman*
28 *Petrol Pump Person*
29 *Cooking,Cleaning/vegetable cutting board*
30 *Disappointed but relieved face*
31 *Love (a face with hearts)*
32 *Anger*
33 *Happy*
34 *Mathematical sign*
35 *Language (books)*
36 *Science(Microscope)*
37 *Music*
38 *Computers*

Fig 1.2. Questions of the test

Figure 1.2. lists the questions of the test in tabular format. These jobs/feelings/apparel have to be classified as 'boy', 'girl' or 'both'. The test records the time taken in giving the answer, the answer itself, and what the pattern of responses displays.

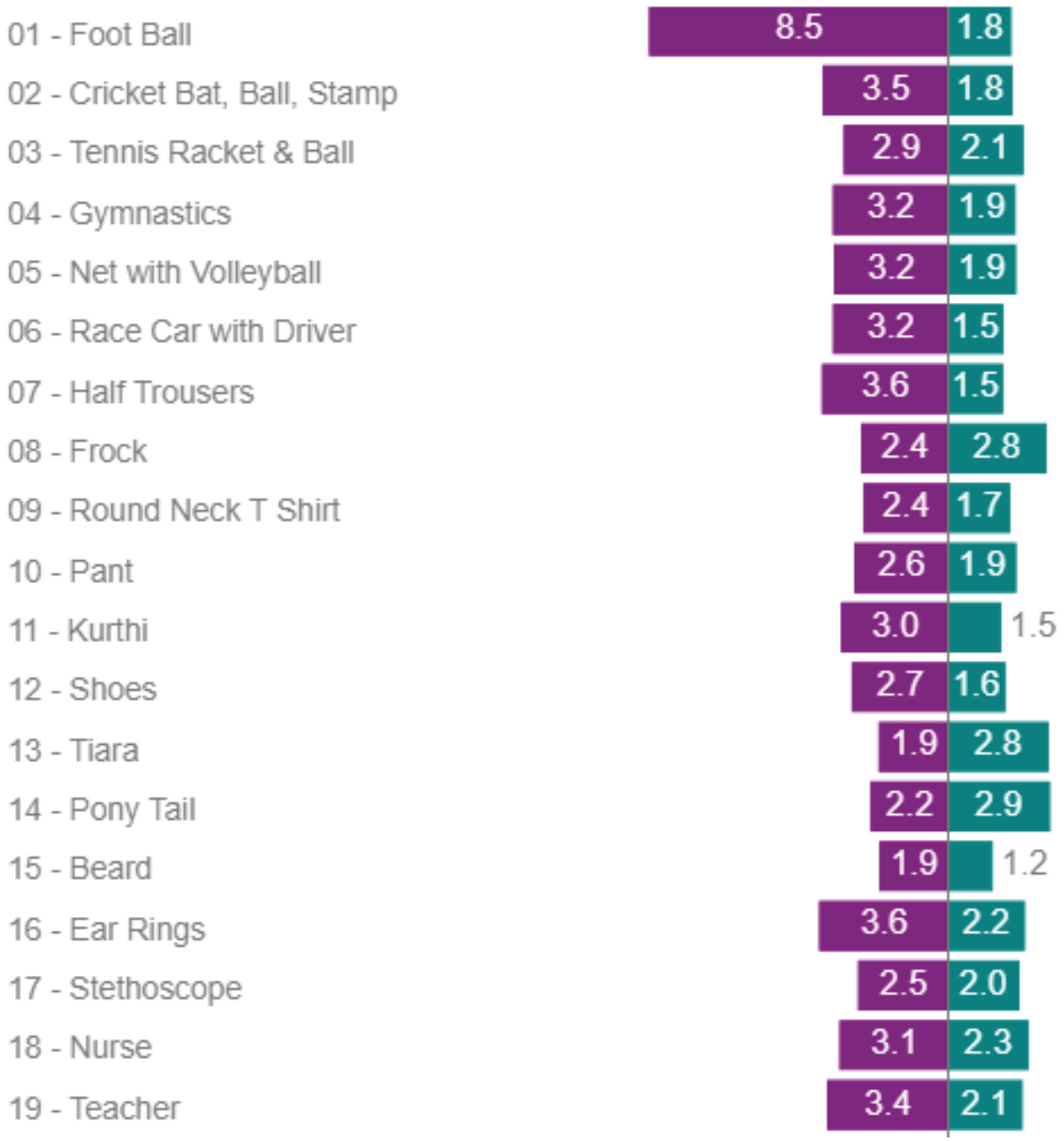

Fig 1.3. Average Time and Responses for each answer

The above diagram shows the results of the two relevant criteria: the time taken to respond and the response itself. The purple section represents the average time taken to give an answer while the green represents the answer itself. As is evident in the key, 1 stands for 'boy', 3 stands for 'girl' and '2' stands for both [so the numbers in green/ turquoise basically represents the answer selected, for example if its 2.3 that means most answers were both, followed by female, followed by male]. Figure 1.4. displays the same data for the next 19 questions.

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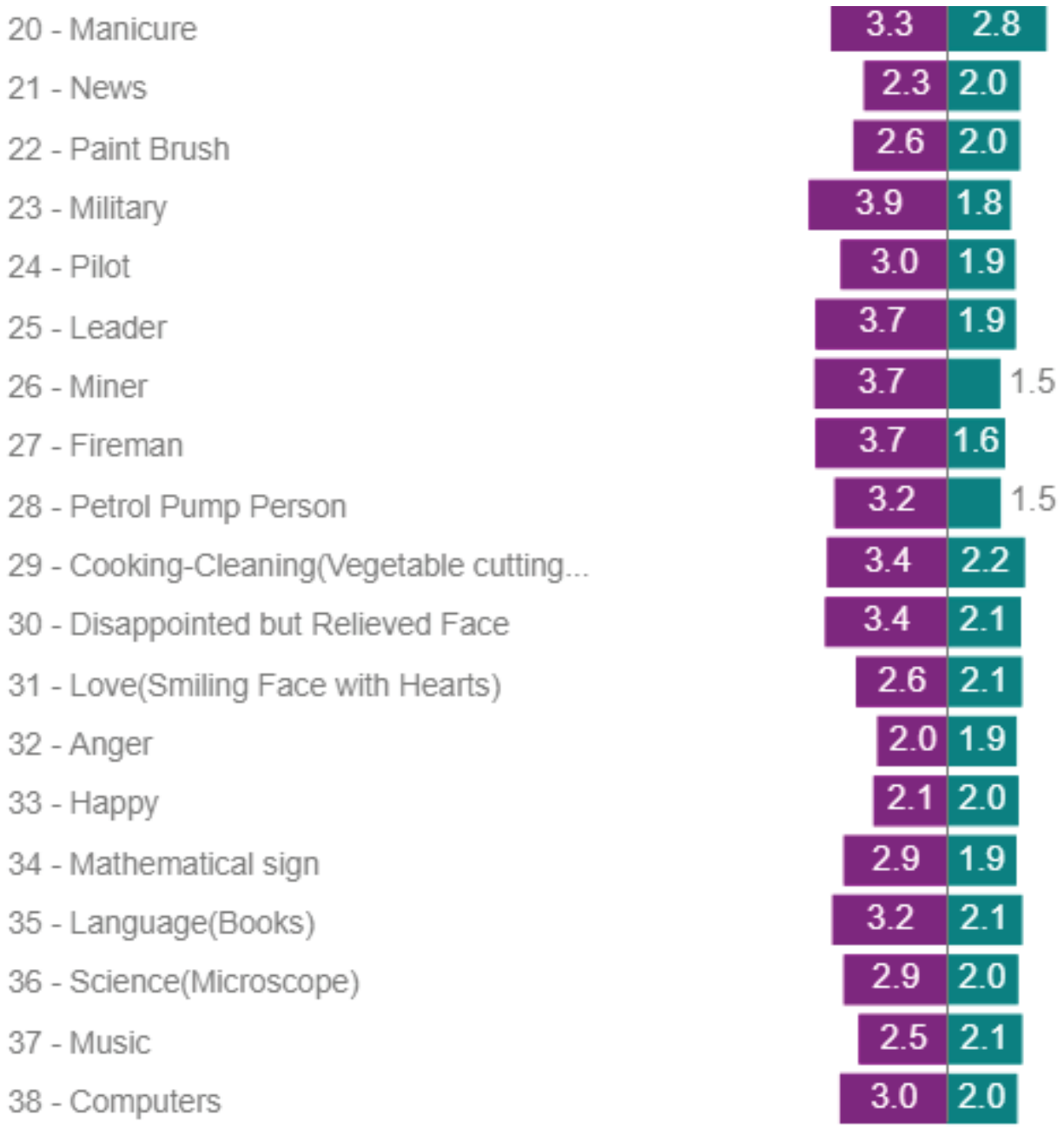

Fig 1.4. Average Time and Responses for each answer (contd.)

KEY

Purple is average time (in seconds)
Green is answer scale

1 = boy
2 = both
3 = girl

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Question	Mean time (in seconds)	Std dev	Minimum	Maximum	Median time (in seconds)	Variance
01 - Foot Ball	8.47	6.19	0.16	39.41	7.06	38.37
28 - Petrol Pump Person	3.18	4.98	0.15	46.55	2.01	24.84
27 - Fireman	3.72	4.73	0.13	43.84	2.59	22.33
26 - Miner	3.75	4.56	0.17	48.81	2.84	20.75
07 - Half Trousers	3.56	4.33	0.17	49.79	2.50	18.74
23 - Military	3.91	4.23	0.17	34.24	2.68	17.93
05 - Net with Volleyball	3.22	3.71	0.17	41.32	2.47	13.76
36 - Science(Microscope)	2.92	3.48	0.15	25.54	1.96	12.09
35 - Language(Books)	3.24	3.46	0.15	33.21	2.36	11.94
02 - Cricket Bat, Ball, Stamp	3.53	3.33	0.00	23.34	2.53	11.08
16 - Ear Rings	3.64	3.17	0.16	26.87	3.14	10.05
25 - Leader	3.72	3.07	0.14	21.87	2.71	9.45
06 - Race Car with Driver	3.25	3.01	0.15	26.08	2.47	9.08
31 - Love(Smiling Face with Hearts)	2.57	2.82	0.13	28.13	1.88	7.94
29 - Cooking-Cleaning(Vegetable cutting board)	3.39	2.71	0.17	23.56	2.72	7.35
03 - Tennis Racket & Ball	2.94	2.66	0.14	17.47	2.22	7.08
04 - Gymnastics	3.25	2.66	0.11	18.74	2.64	7.07
30 - Disappointed but Relieved Face	3.45	2.65	0.15	20.48	2.88	7.03
19 - Teacher	3.41	2.62	0.16	18.31	2.70	6.85
38 - Computers	3.03	2.59	0.17	15.84	2.24	6.70
24 - Pilot	3.00	2.58	0.15	20.23	2.28	6.67
11 - Kurthi	3.01	2.54	0.15	18.14	2.35	6.44
12 - Shoes	2.71	2.23	0.17	16.04	2.15	4.99
20 - Manicure	3.28	2.23	0.16	11.82	2.65	4.96
10 - Pant	2.64	2.20	0.11	15.71	2.10	4.84
17 - Stethoscope	2.53	2.19	0.15	26.16	2.30	4.78
37 - Music	2.49	2.16	0.13	12.13	1.82	4.68
32 - Anger	1.96	2.16	0.16	18.81	1.59	4.65

Fig 1.5.: Standard deviation and variance for each answer tabulated

*The greater the **standard deviation**, the more the data has been spread around the mean, which means the nature of answers are more heterogeneous*

***Variance** is what tells us which questions were thought about the most. The questions with the highest variance are topics students are confused about regarding its gender identity*

Figure 1.5. shows the average time taken by participants to answer a question and lists all values required to calculate the variance and the standard deviation. To calculate the standard deviation, first the simple average of the numbers has been calculated. Then for each number: the mean has been subtracted and the result has been squared. Each of these results have then been summed and divided by the number of data points (32). The square root of this value yields the standard deviation. The greater the standard deviation, the more the data has been spread around the mean, which means the nature of answers are more heterogeneous.

Category	Both	Female	Male	**Total**
Clothes	471	626	613	**1710**
Feelings	578	59	47	**684**
Jobs	1412	360	451	**2223**
School Subjects	739	62	54	**855**
Sports	638	108	280	**1026**
Total	**3838**	**1215**	**1445**	**6498**

Fig 1.6.: Responses of all participants tabulated category wise

Figures 1.6. and 1.7. now look at how many male and female responses have been received for each category and question separately. Approximately 59% of all the answers (irrespective of categories) have been for 'both' showing broadly, a majority of the questions in the test were not viewed exclusively as associated with one gender. Looking at the data category wise, clothes received the least amount of 'both' options, implying that physical appearances and apparel is an arena where our gender stereotypes are manifested to a great degree. Figure 1.7. does views the choice of the three options based on individual questions.

Question	Both	Female	Male	**Total**
01 - Foot Ball	95	18	58	**171**
02 - Cricket Bat, Ball, Stamp	110	13	48	**171**
03 - Tennis Racket & Ball	124	33	14	**171**
04 - Gymnastics	113	19	39	**171**
05 - Net with Volleyball	126	14	31	**171**
06 - Race Car with Driver	70	11	90	**171**
07 - Half Trousers	61	15	95	**171**
08 - Frock	11	145	15	**171**
09 - Round Neck T Shirt	87	19	65	**171**
10 - Pant	95	30	46	**171**
11 - Kurthi	27	27	117	**171**
12 - Shoes	82	10	79	**171**
13 - Tiara	10	151	10	**171**
14 - Pony Tail	11	154	6	**171**
15 - Beard	10	15	146	**171**
16 - Ear Rings	77	60	34	**171**
17 - Stethoscope	142	14	15	**171**
18 - Nurse	95	60	16	**171**
19 - Teacher	133	26	12	**171**

Fig 1.7.: Responses of all participants tabulated answer wise

Category	Both	Female	Male	**Total**
Clothes	194	292	364	**850**
Feelings	275	32	33	**340**
Jobs	664	183	258	**1105**
School Subjects	361	25	39	**425**
Sports	281	39	190	**510**
Total	**1775**	**571**	**884**	**3230**

Figure 1.8.: Responses of all male participants tabulated category wise

Category	Both	Female	Male	**Total**
Clothes	277	334	249	**860**
Feelings	303	27	14	**344**
Jobs	748	177	193	**1118**
School Subjects	378	37	15	**430**
Sports	357	69	90	**516**
Total	**2063**	**644**	**561**	**3268**

Figure 1.8.: Responses of all female participants tabulated category wise

Figure 1.7. and 1.8. record a gender based breakdown of responses to questions based on categories. As can be seen from the categories, the 'both' option was chosen far more by women (2063 compared to 1775 by men) showing that gender stereotype based implicit associations were of a higher incidence among men.

*** As the analysis based on age uses a large amount of raw data based on three age group classifications, these charts are presented with the analysis in the next section in figures 1.9-2.3*

Analysis

The raw data presented above has been analysed based on twin metrics of gender and age. Based on the observations listed below, this report then moves on to conclusions arrived it and recommendations for the school:

Gender:

The terms of answer choice (girl/ boy/ girl + boy bias [or] none) shows no noticeable difference between the answers of males and females. This was a fascinating insight proving that overt sexism is not visible among participants. A category wise scan on the other hand brought out subliminal biases (as argued in the subsequent observations.)

The time taken per question showed that males took 3 seconds less than females on average. Male respondents took 116 seconds to complete the entire test, whereas females took 119 seconds. Even if the women took more time, they were able to make the choice of 'both'. To put it simply, the time taken is directly proportional to the strength of implicit biases and associations in the respondent's psyche, but it is important to select the gender-inclusive answer. Male respondents did not do so, as shown in figure 1.5.

As is visible in figure 1.5., based on variances, both genders selected more answers that were their gender (male picks male, female picks female) in all categories, however boys definitely have a more sexist mindset/ mindset where answers are more male dominated by a noticeable margin.

Figures 1.7. and 1.8 substantiate the previous observation further by showing the disparity in options that male respondents thought applied to 'both' being approximately 55%, whereas women selected the 'both' option for 63% of the questions. Recommendation 3 addresses how such disparity can be corrected.

Age:

When the same respondents were viewed through the lens of age, the following observations were decided:

13-14 age group:

Children of ages 13-14 had a gender bias in favour of male answers. Figure 1.9. shows 89 more male responses than female responses, especially when it comes to jobs. Jobs such as military, leader, pilot, fireman, and petrol pump operator were associated with men. This is emphasised further in figure 2.0. where military and science were given the least amount of thought (based on average seconds spent, each approximately 3 seconds) and were associated with men. Therefore, these vocations need to be presented to children from a more gender-inclusive manner at a young age. Recommendation 2 seeks to address this quandary.

Category	Both	Female	Male	**Total**
Clothes	92	139	139	**370**
Feelings	119	11	18	**148**
Jobs	285	81	115	**481**
School Subjects	147	14	24	**185**
Sports	138	23	61	**222**
Total	**781**	**268**	**357**	**1406**

Figure 1.9.

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Question	Mean time (in seconds)	Std dev	Minimum	Maximum	Median time (in seconds)	Variance
01 - Foot Ball	10.22	7.42	1.70	33.25	8.70	55.12
27 - Fireman	3.89	7.17	0.17	43.84	2.06	51.43
05 - Net with Volleyball	3.85	6.60	0.17	41.32	2.30	43.59
36 - Science(Microscope)	3.30	4.14	0.15	20.59	2.03	17.15
23 - Military	3.68	3.89	0.17	21.04	2.36	15.11

Figure 2.0.

15-16 age group:

This sample size of respondents had less of a bias towards the male option and primarily chose 'both' as is evident in figure 2.1. where approximately 59% of the responses were for 'both'. Students of this age group had a bias for sports but took time for answers related to clothes or driving (teen related categories) demonstrating weak associative abilities between these activities and both genders, as is visible in table 2.2

Category	Both	Female	Male	**Total**
Clothes	221	281	288	**790**
Feelings	259	34	23	**316**
Jobs	641	194	192	**1027**
School Subjects	343	29	23	**395**
Sports	298	45	131	**474**
Total	**1762**	**583**	**657**	**3002**

Figure 2.1.

Question	Mean time (in seconds)	Std dev	Minimum	Maximum	Median time (in seconds)	Variance
01 - Foot Ball	8.44	6.68	0.71	39.41	6.80	44.68
26 - Miner	4.20	5.90	0.17	48.81	3.07	34.82
07 - Half Trousers	4.02	5.75	0.18	49.79	2.93	33.06
23 - Military	3.90	4.48	0.51	34.24	2.75	20.04
16 - Ear Rings	3.83	3.90	0.16	26.87	3.09	15.20
06 - Race Car with Driver	3.43	3.76	0.15	26.08	2.34	14.15

Figure 2.2.

17-19 age group:

This set of respondents was by far the most gender inclusive. There was a display of a female bias towards clothes but were generally very balanced with their answers (as is evident in figure 2.3 and 3.4).- The probable causes of this inclusivity could be to exposure to modern media, growth or more personal experiences compared to the younger children

Category	Both	Female	Male	**Total**
Clothes	156	202	182	**540**
Feelings	196	14	6	**216**
Jobs	475	83	144	**702**
School Subjects	244	19	7	**270**
Sports	197	40	87	**324**
Total	**1268**	**358**	**426**	**2052**

Figure 2.3.

Question	Mean time (in seconds)	Std dev	Minimum	Maximum	Median time (in seconds)	Variance
28 - Petrol Pump Person	3.71	8.00	0.52	46.55	1.94	64.00
27 - Fireman	3.68	4.78	0.23	35.40	2.82	22.88
35 - Language(Books)	3.40	4.59	0.19	33.21	2.17	21.04
23 - Military	4.12	4.12	0.20	27.65	3.26	16.97
31 - Love(Smiling Face with Hearts)	2.72	4.10	0.22	28.13	1.72	16.79
25 - Leader	4.32	3.98	0.25	21.87	2.94	15.86

Figure 2.4.

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As far as average time per respondent to complete the test in concerned, the data is as follows:

13-14 years: 122 seconds: In this age group therefore, not only were the answers more biased, but also respondents looked longer. Children of 13-14 years therefore require a greater focus on gender inclusivity and sensitivity, some examples of which are present in the recommendations of this report.

15-16 years: 114 seconds: This set of respondents completed the test quickest, and showed less bias than the previous bracket but more than the subsequent age bracket (17-19 years.)

17-19 years: 118 seconds: The previous age set may have had faster respondents, but these students gave the most gender-inclusive answers (as is argued in the previous point.)

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Recommendations:

Based on the data we have and our analysis of this, our recommendations for Vidya School are as follows:

Given that students of the age 13-14 do show a tendency of confusion by thinking longer about the association between sports and their gender compositions (approximately 10 seconds based on figure 1.5), focusing on the physical education for girls from a young age (i.e. girls' football teams and tournaments) is a step in the right direction and drives home a gender-inclusive orientation to sport from a young age.

Assuming that modern media consumption and popular culture is a component of why ages 17-19 are the most gender-inclusive in their thought currents, gender-inclusive films can be screened or stories can be narrated in younger classes in order to combat gender-based prejudices. Some resources that can be used are:
Movies (can be screened on Children's Day and other such occasions):

Mulan: A young Chinese girl enlists in the army in lieu of her ailing father to fight valiantly, warding off a Hun invasion
Tangled: A retelling of Rapunzel with an enterprising protagonist instead of a helpless princess in need of a prince
Moana: A brave teenager undertakes an expedition to save her people, also a musical that children will enjoy.

Stories/Books children will enjoy:
Little Women
Anne of Green Gables
Short stories by Ismat Chughtai, Ashapurna Devi or regional language authors relevant to the Indian context.

During ordinary lessons, teachers use more gender-inclusive examples to explain lessons. When teaching the three tiers of government, women's participation and its improvement over the years, 33% reservation at the panchayat levels and a debate about it and highlighting women such as Chhavi Rajawat, the youngest sarpanch in India can be conducive to the forming a gender-inclusive worldview.

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Conclusion:

In 2019, the Maharashtra State Bureau of Textbook Production and Curriculum Research, popularly known as Balbharati has undertaken an endeavour to make illustrations in its resources more gender-inclusive through illustrations and content. For example, by including illustrations of men and women doing household chores. (Source: The Indian Express) This shows that there is a certain degree of cognisance that gender-sensitivity must be introduced to children from a young age in subtle ways for their holistic development.

While the attempts are being made, this report shows the gap that still exists and how ages 13-14, the onset of puberty, is when the child is least aware of gender stereotypes. This is something that needs correction. As children experience the bodily and emotional changes that come with puberty, they should be able to understand their own as well as the other gender without conforming to harmful gender stereotypes such as a lack of emotional expression among young boys and a discomfort with their changing bodies among young girls.

Secondly, a domain that still remains relatively untapped is helping young boys realise manners in which patriarchy and gender stereotypes affect them as well. The report's findings regarding feelings all the more accentuates how this is something that requires urgent attention.

Lastly, a facet that needs probing is what is novel about the ages of 17-19 that students become more gender-inclusive: maturity, pop culture consumption, peer and parental influence can all be factors. If possible, these should be implemented or developed at a younger age to facilitate a more gender-inclusive approach.

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THANKYOU

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