

## **Analysis Of Psychological Approach Behind Physics Subject -Feels Difficult**

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### **Abstract:**

*It is observed that 70 to 80 % students are fear and felt that physics is difficult subject. Junior college students face the problems to secure good score in NEET, IIT exams for getting admission to Medical and Engineering fields. Same trends were observed that without compulsion most of the students not willingly or interested to take physics as their optional subject as Physics for degree classes. Parents and teachers also felt the same. To find the factors responsible to make physics difficult or what are the actual feelings or psychological approach of society regarding physics subject. Here in present study we take random online survey with the help of Google form and within two days we got response of 116 participants in survey. The present survey participants are students of Senior, Junior college and teacher associates, Professors. From the survey we conclude that Physics is not difficult subject but compare to another subject it is complex and difficult to understand. Much response show that it has vast syllabus felt to difficult. According to some participant it is responsible because of theoretical and numerical problems too. Overall conclusion that Physics is not difficult subject but part of subject felt some difficult some times its due to numerically, skills experiments.*

**Keywords:** *Physics, Psychology, Education, Subject*

### **Introduction:**

In Maharashtra there are various colleges and universities also for conducting examinations is also responsibility of some educational boards and university. Educational boards or state Boards conduct exams of schools and junior colleges where senior or degree and post graduations exams conducted by universities. Recent trends were observed that without compulsion most of the students not interested to take physics as their optional subject as Physics in degree classes. In Maharashtra Total 41 universities, One central university, 19 state universities and 21 deemed universities in Maharashtra. Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE). The MSBSHSE has 9 Divisional Board that are located in Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri. The Board conducts examination twice a year and the number of students appearing for the main examination is around 1,400,000 for Higher Secondary Certificate (HSC) March-April and October -November.

In some university students offers three subject degree as Bachelor of Science (B.Sc.) like B.Sc. with group of three major optional subject PCM, CBZ etc. and some university offers B.Sc. in only one major optional subject like Physics, Chemistry or Zoology etc. Most of the students after HSC are not willingly taking Physics as optional major subject. They felt subject is very hard due to various reasons like rigorous derivations, difficult level of numerical problems and understanding of concepts and terminologies.

In Present study we take the survey of students to analysis of Psychological approach of students, teacher associates, professors and suggestions why physics supposed to be difficult or how to make it easy for all. Present study we collect data from online and offline survey.

**Research Methodology:**

For present research we collect

- 1) **Primary data:** Collected by questionnaires with online survey of Junior science college, Senior science (Degree) college students, teacher associates and professors from different subjects by using Google form with Following link

<https://docs.google.com/forms/d/e/1FAIpQLSfZbpoX4KOE6ag6y271DaXznf Ntw LxHPFHh5TLbbEbjTiQ/viewform>

- 2) **Secondary data:** Internet and Research papers

**Objectives of The Study**

The following are the important objectives of the present study

- a) To study the psychological approach of Junior college students behind why Physics subject feel difficult.
- b) To analyse the psychological approach of Senior college (Degree) students behind why Physics subject feel difficult.
- c) To study the psychological approach of Teacher associates or Professors behind why Physics subject feel difficult.
- d) To study the psychological approach in Online survey

**Qualitative and quantitatively discussion of survey:**

In Maharashtra state, Degrees are allotted by different categorised Universities and they have their different patterns of examinations (exams.) in different subjects. In B.Sc. Degree, awarding Degree has also different pattern like awarding B.Sc. in three major subject or in single subject too.

Classify our sample into three sub-category as Junior science college students of age group 15 to 17 years, senior science college students in the range of age 17 to 22 years and took the active participation of teacher associates, professor who taught to Degree college science students of age group of 23 to 60 years. Generally, Physics is compulsory for Junior science college students with four Major subjects like Physics, Chemistry Mathematics, Biology with groups PCBM, PCB-Geography/ Psychology or regarding that pre-assume that the students want to take higher education in Medical field, agriculture so they left mathematics. PCM with Electronics or Computer Science to avoid biology means again Pre- assume that the students will take higher education in Engineering filed.

In present study, 200 participants responded in which the Male female percentage were 51 % to 49 % i.e. 102 and 98 participants respectively.as point of age group of 15 to 17 years, the participants were 18 and 18 to 22 years age group we 134 participants and 23 to 60 years age group, the participants were 48 participants.

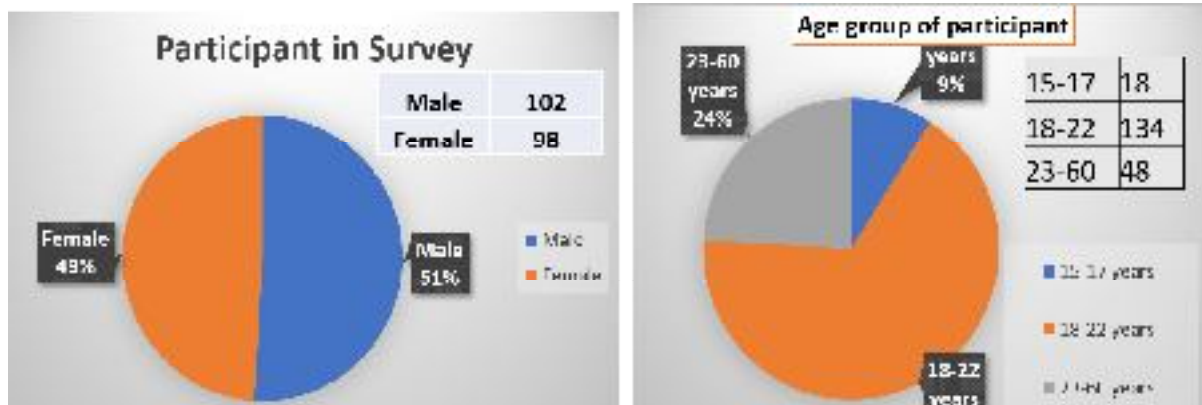


Fig.1 Pie-graph Representation of gender classification and age-wise responded

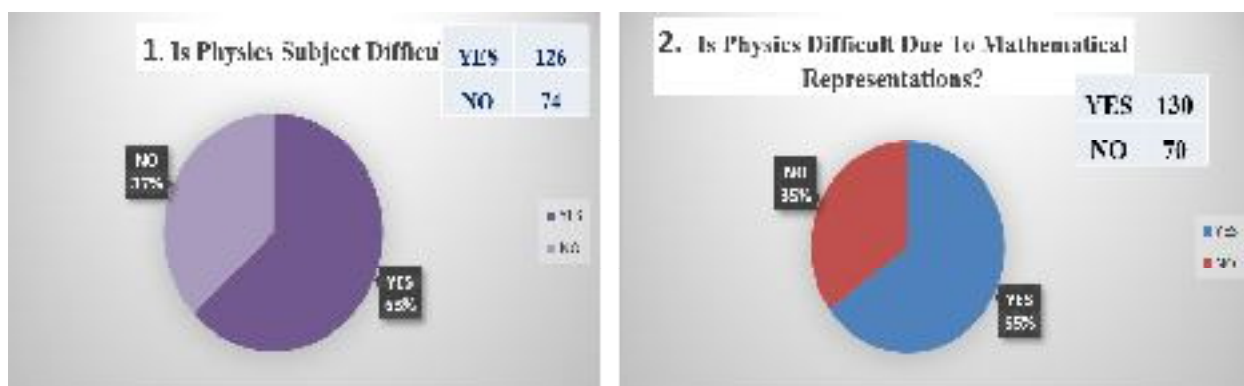
**1. Is Physics difficult?**

In the graph shows that Physics is difficult subject but response difference is small because the survey was based on the participant of different age group and divided into heterogeneous education strata so psychology of younger students felt fear, difficulty to understand Physics. **In Present survey 63% (126 participants) response was YES where 37% (74 participant) response was NO**, But the professor or higher educated students have grown their analytical understanding and also have good imagination power to understand the concepts of Physics. Therefore, the response somewhat diverted to NO. The scoring of the students in Physics shows us the Physics is difficult subject surely compared to another subject.

**2 Is Physics difficult due to mathematical representations?**

The response surely again leads to **YES by 65% (130 participants) while the NO responded by 35% (70 participant)**. Generally, Mathematics is difficult subject due to its representations and same way Physics has lots of representations in terms of mathematics without mathematics physics is not represent properly or exactly. Due to Latin alphabets and their equation representation responsible to poor understanding of Physics.

Graphical representation of statistical data as follow

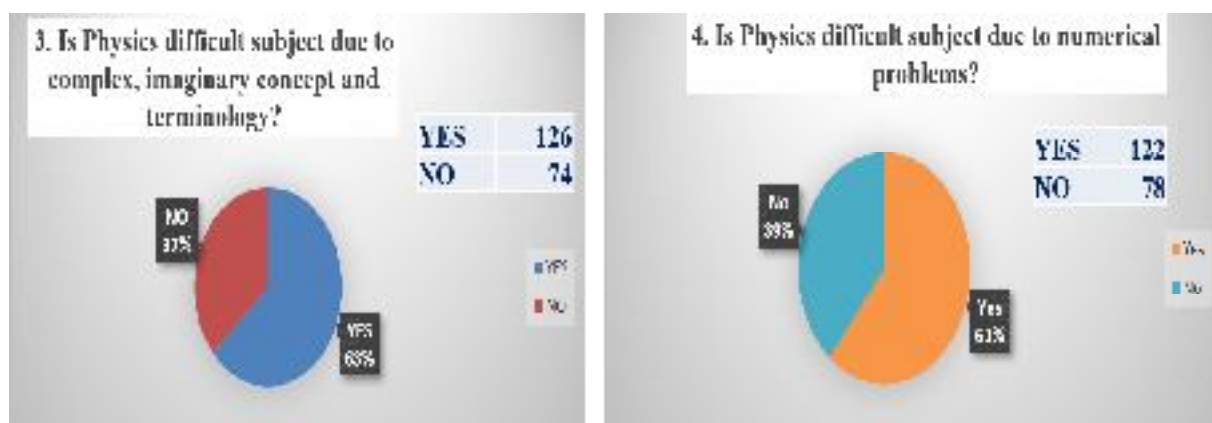


**3. Is Physics difficult subject due to complex, imaginary concept and terminology?**

The responded to **YES** by **63% (126 participants)** while the **NO** responded by **37% (74 participants)**. Phenomenon like Current, electric field, Magnetic field, Electron, Proton like terms and particles which are not visible but related to our day to day life and application to society. To represent the concept of physics like oscillations or relativity of Einstein’s leads to complicity in physics. Actually, to understand such phenomenon, skilled and expert teachers, professor can make vital role.

**4. Is Physics difficult subject due to numerical problems?**

The responded to **YES** by **61% (122 participants)** while the **NO** responded by **39% (78 participants)**. In Physics after theoretical study we have to solve numerical problems which is main factor to make feel physics difficult. Many students not secure good marks in Physics due to numerical problems because of this tendency of less marks shows everyone feel its difficult subject as compare to other subject.

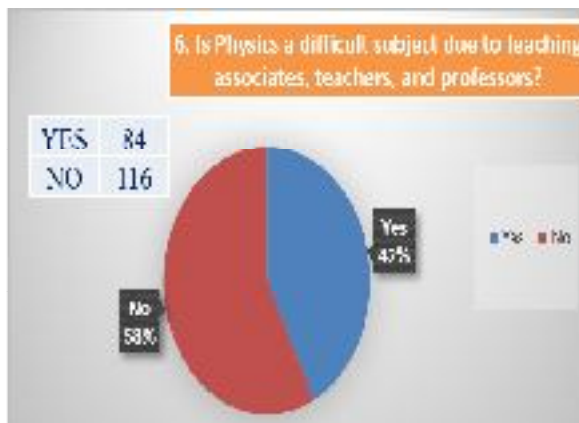


**5. Is Physics difficult subject due to vast syllabus?**

Generally, many examinations like NEET, IIT-JEE, CET national level exam contains the syllabus which is very vast for Physics which leads less score and students loses their admission to Medical and Engineering. Vital role of Physics to get admission into Medical and Engineering field. **The responded to YES by 52% (104 participants) while the NO responded by 48% (96 participants)**. It is observed that subject is not vast but compare to the subject it looks to vast due to its numerical problems.

**6. Is Physics difficult subject due to teaching associates, teachers and professors?**

**The responded to YES by 42% (84 participants) while the NO responded by 58% (116 participants)**. Its very important aspect of present survey whether tutor or teacher or professor teaching leads difficult the subject or not. It is observed that teachers taught the subject good and there is very few responded that teachers made role to leads the subject difficult.

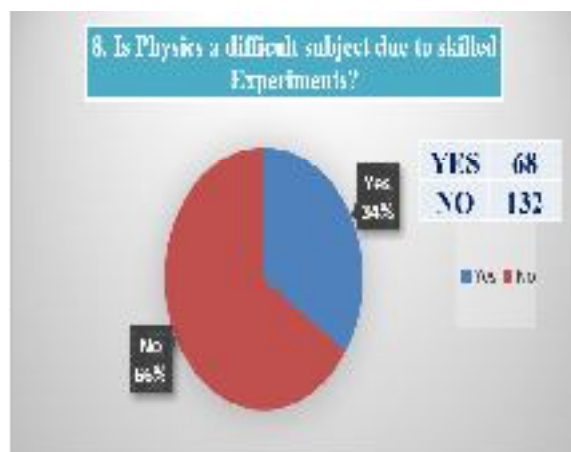
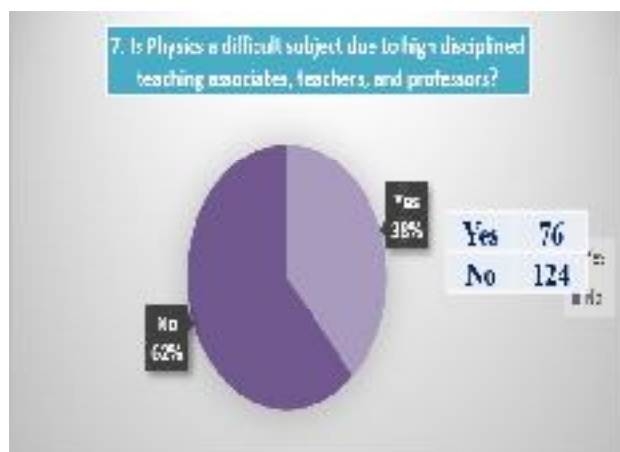


**7. Is Physics difficult subject due to high disciplined teaching associates, teachers and professors?**

The responded to YES by 39% (78 participants) while the NO responded by 61% (122 participants). Generally high disciplined leads to poor communication with teachers so students are not easily approach to teachers to ask their doubts and questions. Therefore, this leads to poor understanding and then felt to subject difficult.

**8) Is Physics difficult subject due to skilled Experiments?**

The responded to YES by 34% (68 participants) while the NO responded by 66% (132 participants). Generally, practical are only leads to creates skills in students and increases the understanding of the students about subject rather than class. Due to difficult practical also leads the subject difficult. But in our survey showed that majority students are agree with the conclusion that physics is not difficult due to skilled experiments.

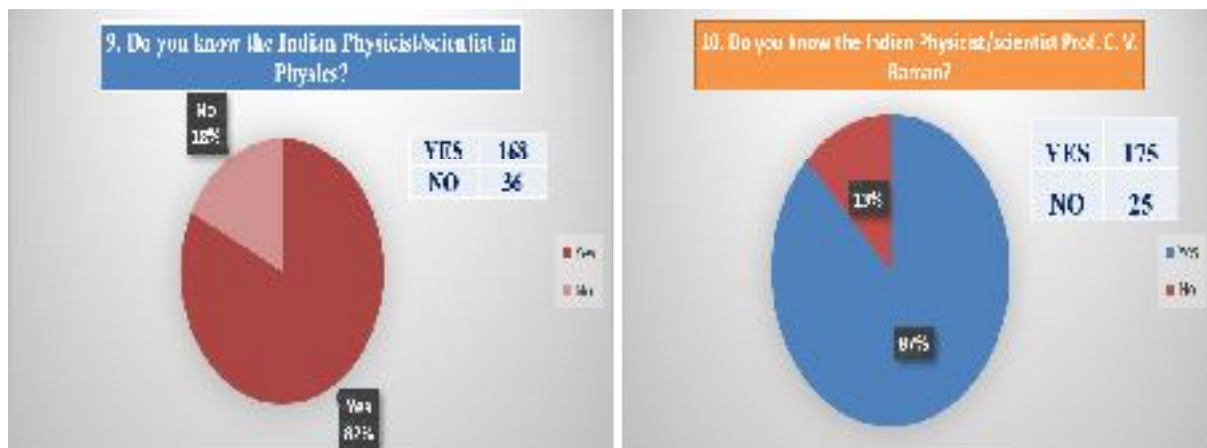


**9) Do you know the Indian Physicist / scientist in Physics?**

The responded to YES by 82% (164 participants) while the NO responded by 18% (36 participants). This is only question to know general knowledge and interest of Physics. All from intellectual class so respond is excellent about their general awareness.

**10) Do you know the Indian Physicist / scientist Prof. C.V. Raman?**

Prof. C.V. Raman is only Physicist who got Nobel Prize in Physics. We expect the intellectual awareness about in Indian scientist and Nobel Laurates. **The responded to YES by 87% (174 participants) while the NO responded by 13% (26 participants) to this question.**



**11) Do you know Newton?**

Newton is first Philosopher who well known for is contribution in Physics. We hope all will respond YES. **The responded to YES by 98% (196 participants) while the NO responded by 02% (04 participants).**

**12) Do you know the scientist Einstein?**

Einstein is famous scientist well known for Relativity. His contribution in Modern Physics or in physics is remarkable. Psychological Approach behind that to know the interest about Indian as well as about physicist and scientist. **The responded to YES by 93% (186 participants) while the NO responded by 07% (14 participants).**



**Result and Conclusion:**

In the present survey, it is observed that about getting admission in medical or engineering field it depends on scoring of NEET, IIT and CET exams. Due to low score secured in exam make the students assumption that it is difficult. It is not the actual because of score not any subject meant to be difficult. It required more understanding of logical analysis to solve the numerical problems than other subject. Its again perception of students changes with age group. Understanding of analytical concept increases with increasing age too.

We also asked the suggestion to make physics easy and it is observed that by ICT application, 3-D models, visit to science planetariums, Research institute and new inventions in teaching pedagogy leads to understand subject.

Survey shows that Physics is not difficult subject but part of Physics is difficult to understand due to mathematical, numerical Problems and complex concept in Physics.

- 1) It felt because its vast syllabus comparable to another subject
- 2) Due to online survey its without pressure participant eagerly responded.

**Advantage of survey:**

- 3) We took this survey paperless.
- 4) Participant group is heterogenous and Random colleges students and teachers Participated

**References:**

- 1) *Funda Ornek, William R. Robinson, and Mark P. Haugan, What makes physics difficult? International Journal of Environmental & Science Education, 2008, 3 (1), 30 – 34 ISSN 1306-3065*
- 2) *Angell, C., Guttersrud, , Henriksen, E. K. & Isnes, A. (2004). Physics: Frightful, but fun, Pupils' and teachers' views of physics and physics teaching [Electronic version]. Science Education, 88, 683- 706.*