

FATIGUE EXPERIENCED BY STUDENTS IN A DAY LONG CLASS: A SURVEY ON STUDENTS

Sharaj A P¹, Rohan Pattankar², S Kishore³, Madhav Murthy⁴

1Department of Mechanical Engineering, B.M.S College of Engineering, PO Box 1908, Bull Temple Road, Basavangudi, Bengaluru 560019, Karnataka, India

2Department of Mechanical Engineering, B.M.S College of Engineering, PO Box 1908, Bull Temple Road, Basavangudi, Bengaluru 560019, Karnataka, India

3Department of Mechanical Engineering, B.M.S College of Engineering, PO Box 1908, Bull Temple Road, Basavangudi, Bengaluru 560019, Karnataka, India

4Department of Mechanical Engineering, B.M.S College of Engineering, PO Box 1908, Bull Temple Road, Basavangudi, Bengaluru 560019, Karnataka, India

Abstract: *This paper discusses the various factors affecting the performance of a student in a day. A survey was carried out in order to formulate an opinion about the topic. Here an effort has been made to gather information from students currently pursuing engineering across various colleges having substantial variation in their timetable, in the state of Karnataka as well as at a national level. The method adopted to conduct the survey was questionnaire. The findings of the survey indicated that the main factors affecting students' active listening during lecture are the insufficient number of breaks in a day, distance of travel, peer pressure and the presence of insufficient infrastructure. This study clearly shows us that a student balance his personal interests and his academics further the college should provide an ideal environment so as to allow the student to accomplish the former.*

Keywords: Performance, Survey, National Level, Active listening, Peer Pressure, Bad infrastructure.

Introduction: Fatigue is a universal phenomenon experienced by both healthy and sick people. Despite differences in definitions of fatigue, a consensus exists that it is a subjective, multifactorial and multidimensional phenomenon.

Fatigue is generally defined as an unpleasant physical sensation, with cognitive and emotional components, described as tiredness that is not relieved with common strategies to restore energy. Fatigue with respect to students daily can range from attending excessive classes, disinterest of the student in the academics.

The physical exhaustion of the student may arise due to his/her travelling distance or by jotting down notes in the class and due to the presence of minimum number of recreational activities in a day.

From the above we have come to know fatigue occurs due to tiredness or exhaustion, decreased ability to perform habitual activities, lack of relief to restore energy. Now the question arises that how does this affect a student's daily activities that may range from academics to co-curricular activities.

The primary objective of a student on a working day is to attend the classes and main agenda of attending the classes is to gain knowledge and the main factor hindering his efforts is the fatigue he/she experiences. The after-effects of fatigue are reduction in learning capacity of the student, demotivation of student, sleep deprivation, hypertension etc.

This paper deals with bringing into light the factors that lead to inefficiency of student in academics and putting forward the statistics and the major factors that lead to fatigue and suggest some measures so as to reduce his fatigue and motivate him to attend classes and concentrate in the class with a higher efficiency.

Methodology:

This survey was conducted on 450 engineering students from different branches, years, colleges from all over India. The Questionnaire was prepared during the period July 2015 to August 2015 and data for this survey was gathered during the period from September 2015 to November 2015. The questionnaire consists of majorly 2 parts. The first part is designed to collect the basic information from the students namely, the name of their college, the branch of engineering, year of study etc. The 2nd part consisted of the questions for the survey.

There are 36 questions in total in the questionnaire. The questions are in two formats. The first format is multiple choice so as to narrow down the affecting factors and the second format is open ended question so as to record the opinion of the students on the improvement of current conditions of curriculum. The questions are so designed so as to extract maximum possible information about the student's opinion on what are the factors affecting their active listening in classes as a result of fatigue. There are 18 questions in the questionnaire which directly gives us the factors affecting the students during class hours. There are 3 open ended questions so as to obtain views of the students over the influential factors for fatigue. The rest of the questions are given as a support or reinforcement over the influence of these factors affecting students' academic life.

The questions may-be divided into two groups. The first group of questions deal with the external factors like infrastructure, travel distance etc., affecting the students' active listening. The second group of questions focus more on the internal factors affecting the students' performance like peer pressure, pressure from parents, self-made decisions, self-confidence etc.

The online survey was conducted on Google Forms, a free-to-use website. Responses were also collected through one to one interaction. Further, the collected data was compiled and appropriate conclusions were drawn from the data.

Results and discussions:

The data analysis was carried out with the help of pie charts and bar graphs. A few essential graphs and pie charts are mentioned here.

Results from the survey show that nearly 46% of the university students are completely exhausted and nearly 14% of the students feel partially fatigue. Thus the survey confirms the following factors causing fatigue and thereby affecting their active listening during class hours:

- 1) The distance of travel from place of stay to college
- 2) The mode of transport the student uses
- 3) Dress code in college
- 4) Timing of the initial classes (for example, early morning, mid-morning, afternoon etc.,)
- 5) Intensive block scheduling
- 6) Insufficient number of breaks
- 7) Long duration of classes
- 8) Extended duration of classes
- 9) Unawareness of the learning objectives of the courses
- 10) Mode of payment of fees for education
- 11) Method of teaching (traditional, modern)
- 12) Not updated curriculum
- 13) Mode of evaluation (tests, assignments, online courses, projects etc.,)
- 14) Peer pressure
- 15) Distractions like mobile phones, games, chatting, sleep etc., both inside the classroom and outside
- 16) Low grade infrastructure
- 17) Pressure from parents
- 18) Participation in extra and co-curricular activities.

The above mentioned factors were studied in detail and the survey was conducted. The effects of each of these factors are discussed separately.

1) The distance of travel from place of stay to college :

The distance of travel determines a major percentage of the fatigue caused to students. It is seen from the survey that around 50% of the students travel around 10 to 15 km a day from their place of stay (Home, PGand Hostel) and around 70% of them felt exhausted after a daylong class.

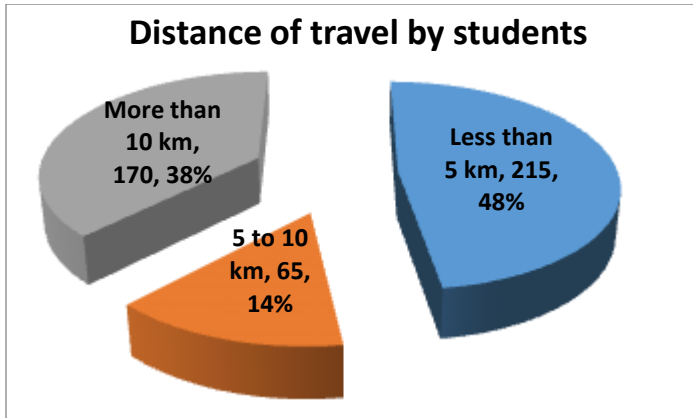


Figure 1

2) Transportation, Timings of initial classes and dress code:

The mode of transport the student uses greatly affects his/her listening capabilities. For lesser distances, if the student is using his/her own vehicle he/she doesn't feel exhausted. But for larger distances, the student becomes exhausted by the time he/she reaches the university no matter what the mode of transport is (own vehicle, public transportation etc.). Moreover if the classes start early in the morning because of the travel time added, the students would have to get up early in the morning thus resulting (over a long time) in plausible sleep deprivation, hypertension, stress, less concentration and depression. From the survey it is seen that 30% the students use their own vehicle, 44% use public transport and the rest 26% use other modes of transportation to get to the university and nearly 80% of the colleges which came under the survey started early in the morning i.e., at around 8:00 A.M. Moreover the presence of dress code in the university made more than 56% of the students feel uncomfortable thus leading to irritation and decrease in their concentration.

3) Block Scheduling and the external factors affecting the students' concentration:

Block scheduling is the division of classes into separate and recognisable slots or blocks. This, if done correctly, greatly enhances the academic performance of students. But if intensive block scheduling is carried out, it results in hypertension, stress, disinterest and depression by students thus demotivating them.

From the survey it is seen that more than 50% of the students felt the heat of intensive block scheduling as too much and around 25% of the students felt discouraged because of the classes starting early. In spite of more than 86% of the colleges that participated in this survey had the basic infrastructure required for engineering education it is seen that more than 90% of the students do not like to attend classes in the early morning hours. Another external factor that affects the students' concentration is the size of classrooms. Over the last decade, many countries have experienced dramatic increases in university enrolment, which, when not matched by compensating increases in other inputs, have resulted in larger class sizes. Although university education may involve more self-learning than primary or secondary education, class size is solidly at the top of the policy agenda and concerns of both faculty and students. This is particularly evident in India where concerns on the increasing student-to-staff ratios in higher education institutions have recently been a major concern and the matter has been reviewed by the most important unions of university teachers. The student-to-staff ratio is also a commonly used indicator of quality both in national and international comparisons. For instance, the student-to-staff ratio accounts for 20% of the scores that determine the global ranking of higher education institutions by the Times Higher Education Supplement. When the students were asked about the ideal number of students per classroom, from the survey, it is seen that around 22% of the students felt that around 20-30 would be sufficient, around 34% of them felt that around 30-40 would be comfortable and around 44% of them felt that around 40-50 would be more than sufficient. Moving on to the motivating factor it is seen from the survey that only 22% of the students were motivated by knowledge enhancement, 37% of the students were motivated only because for the sake of attendance, only 14% of the students were motivated for personality development and the rest didn't feel motivated at all.

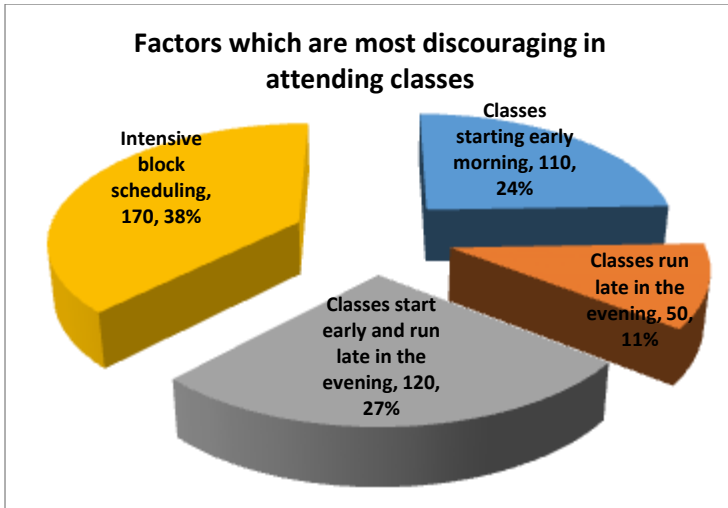


Figure 2

4) Internal factors and influential factors affecting students’ active listening:

As much as the external factors, the internal factors like peer pressure, pressure from parents, distractions, sleep deprivation etc. also result in the decrease of students’ academic performance. To what extent do peer groups affect academic performance, in quantifiable terms is actually difficult. There are numerous variables to consider, however, here are a few important ones.

- A) According to the study published by the Williams Project on the Study of Economics in Higher Education, stronger students do have an impact on their peers and actually help improve the overall academic performance of the peer group.
- B) Another large study done by CREDE (Centre for Research in Education, Diversity and Excellence) suggests that peer groups are highly influential during the age group of 15-22 years.

In fact from the survey it is seen that around 21% of the students are completely influenced by their friends, around 69% of the students are partially influenced and only 10% of them aren’t influenced by their friends.

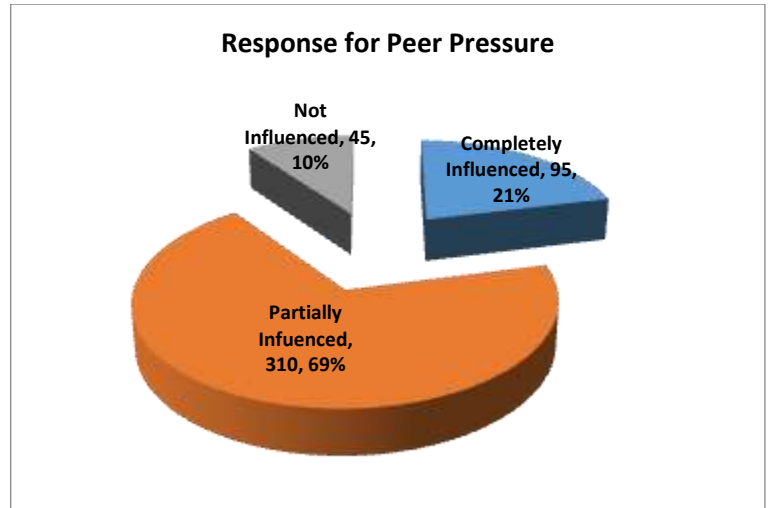


Figure 3

When the students were asked whom they would rely upon for taking academic decisions, around 18% of them replied that they would rely on their friends, around 26% of them replied that they would rely on their parents, around 7% of them replied that they would rely on their teachers and around 49% of them replied that they would rely on themselves which showed that the influence of peers, parents and teachers is still evident.

Parents always want the best for their children – many harbour dreams of top colleges, followed by lucrative careers in within a global, competitive economy. In order for students to meet these expectations they must perform well during their tests, exams and assignments. Parents can be well-intentioned in wanting their children to perform well during their university years, but they are often too heavily influenced by a culture of academic intensity. They see the booming test prep industry and feel pressure on their own to make sure their teen performs well on all the university exams and entrance exams. At many colleges, parents can track their child’s progress online and access their grades on tests, quizzes and assignments, creating a situation where they have so much information, they can start to obsess over every single score. Many parents put intense pressure on their children to earn perfect grades, no matter the cost. Experts warn that this type of intense pressure on university students will cause them to have mental, emotional, psychological and even sometimes physical breakdown.

Many children collapse under too much parental pressure. Sleep deprivation, eating disorders, excessive worrying, cheating, burnout, loss of interest in hobbies or withdrawing from friends and family can all be consequences of excess pressure. From the survey, it is found from the students that around 75% of the students are unable to meet their parents' expectations and are feeling extreme fatigue during class hours.

It is found that around 25% of the students get distracted very often, around 51% of the students get distracted occasionally and around 24% of the students get distracted rarely. It is also found that when students get distracted during class hours around 66% of the students become mentally absent, around 17% of them use their mobile phones and around 18% of the students tend to sleep during class hours.

From the above it is found that parental expectations are the biggest challenge that the student faces among all the internal factors so it is advisable to parents to set respectable benchmarks for their children so the child does not face the pressure and the second most important factor that is most influential in a student's life is his/her friends so it is necessary for he/she to find a balance between friends and family.

5) Attention Span, Mode of teaching and Extended Class times:

Attention span is the amount of concentrated time one can spend on a task without becoming distracted. Most educators such as psychologists agree that the ability to focus attention on a task is crucial for the achievement of one's goals.

Some state that the average human attention span is approximately 10 minutes; others state that most healthy teenagers and adults are unable to sustain attention on one thing for more than about 40 minutes at a time, although they can choose repeatedly to re-focus on the same thing. This ability to renew attention permits people to "pay attention" to things that last for more than a few minutes, such as long films.

Attention is also increased if the person is able to perform the task fluently, compared to a person who has difficulty performing the task, or to the same person when he or she is just learning the task. Fatigue, hunger, noise, and emotional stress reduce the time focused on the task. Common estimates for sustained attention to a freely chosen task range from about five minutes for a two-year-old child, to a maximum of around 40 minutes in older children and adults.

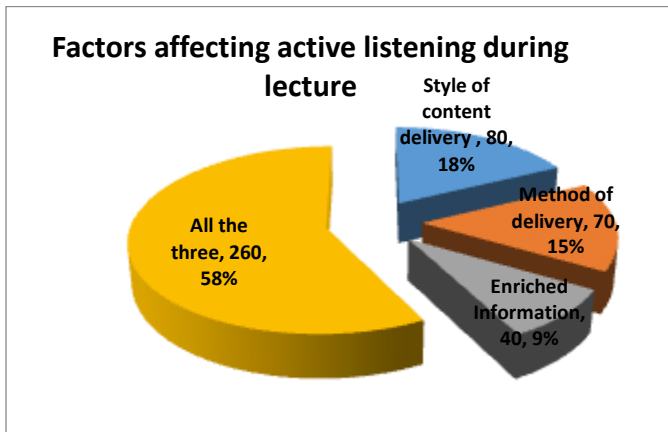
This is backed up by the results obtained from the survey that shows that on an average, the students can concentrate effectively or actively listening for about 10-20 minutes only. One of the main reasons for this is the unawareness of the learning objectives of the courses they are studying. It is seen from the survey that around 30% of the students are completely unaware of the learning objectives, around 50% of the students are only partially aware of the learning objectives. This leads to loss of interest in the subject by the students and they start to feel distracted more often.

Not too long ago, teacher's responsibility was to teach, and a student's to learn. Teachers weren't necessarily aware that children have different factors that impact their ability to learn and succeed in school, or even that they could modify instruction to ensure student learning.

Because we're all unique individuals, we each have a special learner profile, or set of descriptions about who we are as learners. The term is broad and includes things like cultural background, gender, and personality. If you want to learn how to roast a duck, it might make sense for you to look up a recipe and read about it. For others, they would be better off watching a video or working with a friend. Some may even prefer to take a class. Our personal factors impact how we learn best and create our learner profile, kind of like a fingerprint of us as learners.

From our survey it is noticeable that only 13% of the students preferred monologue, around 45% of the students preferred dialogue (mutual discussion between students and teachers) and 43% of the students preferred group discussion as an effective means of learning during class hours.

Moreover it is seen that among the factors that mainly affect active learning during lecture around 18% of the students felt that the style of delivery of content affects them the most, around 15% of the students felt that the method of delivery of content affects them the most, around 9% of the students felt that enriched information delivered by the lecturer affects them the most and around 58% of the students felt that all the three affected them equally.



Massive open online courses that can beam talks to thousands or even millions of students have been the most effective forms of teaching. From our survey it is evident that 18% of the students preferred a completely digitalised classroom, a mere 2% of the students felt the need for the same old traditional classrooms and the rest 80% of the students preferred a combination of both the traditional and digital class rooms to enhance their learning capabilities. Similarly 60% of the students preferred project based learning, 26% of the students preferred problem based learning and only 14% of the students preferred traditional learning. Moreover when the students were asked what kind of classes they prefer after their lunch around 71% of the students preferred laboratories, around 22% of them preferred problem based courses and only around 7% of the students agreed to attend a lecture class.

From the above it is seen that digital classrooms are the future and introducing application part of the subject to a student would make him more interested in the subject.

Hence providing certain projects would help a long way in moving in the right direction.

Conclusion: With the vision of formulating the reasons for disinterest and the requirements of students to increase their active listening in a classroom, certain important factors of engineering education, personal life were questioned in the survey. The responses obtained, as provided before, are analysed hereby taking into account their weightage in causing fatigue which in turn affects the efficiency of a student in classroom.

The most important factor that affects the students in their active listening is found to be fatigue which leads to demotivation, disinterest in attending classes, plausible isolation from friends and family, depression and thus finally leading to poor academic performances. From our study it is evident that a student feels refreshed and becomes motivated by having digital classrooms, interactive classes and project based learning.

Timetable of the daily curriculum is a very significant factor in causing fatigue. So as to reduce the burden of having intensive classes, proper block scheduling has to be carried out and the length of span of classes should be set around 45 minutes with a minimum of 2 breaks in a day and by not having classes early in the morning by taking into consideration the travel time that has to be faced by students. Moreover the student has to find an optimum distance between the college and his/her house so it does not exhaust him/her due to travelling long distances.

The student should be mentally tough so as to handle the peer pressure and should be able to take right decisions at the right time without being easily influenced by his/her friends.

Fatigue, a mere 7 letter word, but its magnitude of impact is felt in a large scale by students. Reduction in degree of fatigue in students' life would right the path for betterment of the students' academic life so in achieving this there should be an equal contribution from major factors right from parents to teachers and the students themselves. As long as this parameter called fatigue does not reduce the actual purpose of student's concept of learning in college will not be fulfilled.

References:

- 1) *Does Time-of-Day of Instruction Impact Class Achievement?* Amanda J. Wile and Gary A. Shoupe
- 2) *Heterogeneous Class Size Effects: New Evidence from a Panel of University Students*
By Oriana Bandiera, Valentino Larcinese, Imran Rasul
- 3) *Affective Factors Influence Classroom Learning*
A textbook by Richard E Ripple
- 4) Mota DDCF, Pimenta CAM. *Self-report instruments for fatigue assessment: a systematic review. Res Theory Nurs Pract.* 2006;20(1):49-78.
- 5) *Effects of an irregular bedtime schedule on sleep quality, daytime sleepiness, and fatigue among university students in Taiwan: By Jiunn-Horng Kang and Shih-Ching Chen*
- 6) https://www.teens.lovetoknow.com/the_extent_to_which_peer_groups_influence_academic_performance
- 7) http://www.nhs.uk/Livewell/Childrensleep/Pages/why_teens_sleep_too_much.aspx
- 8) <http://www.nytimes.com/1997/11/23/nyregion/scientist-says-sleepy-teen-agers-aren-t-just-tired.html?pagewanted=all>