

A Statistical Approach to Modernize the Indian Higher Education System for Rural and Vernacular Students

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Abstract

In this paper we analyse the data from our survey of the learning habits of MBA students in South Karnataka. We conducted an online Google survey on learning habits of 330 MBA students, and received 78 responses in a week, which we present in this paper with our analysis. We study the differences in between the rural and vernacular students compared to English educated city students. We conclude the paper with our insights and suggestions for improving pedagogical methods in Indian higher education.

Keywords: Pedagogy, MBA student survey, statistics, R, correlations, t-tests, urban, rural, vernacular, mother tongue, learning habits.

INTRODUCTION

There have been many studies on how students learn, and what must be done to improve the pedagogical methods in institutes of higher learning in India. Altbach (2012) argues that Indian Education System is outdated, and our survey examines the issue with empirical data about the learning styles of MBA students at JKSHIM in Dakshina Kannada, Karnataka, India. However not much thought has been given on tailoring higher education for the rural vernacular students in India; with this in mind, we conducted a survey of MBA students in our college, which has a rich mix of rural and urban students. The rural vernacular students have a rich cultural heritage, but different learning styles make it harder for them to integrate into global learning systems.

We analysed the survey data in R to find how the learning habits of rural and vernacular students differ from their peers from their urban peers who studied in English. We present our findings and suggest ways to close the educational gap between vernacular, rural and urban students in higher education.

THE SURVEY

We sent out a Google Survey with 62 Questions, of which 55 could be numerically graded on the likert scale (1 to 5, with 1=strongly disagree, 2=disagree, 3=don't care, 4=agree, 5=strongly agree). We initially processed the 78 responses in Google itself, downloaded the data as a CSV file and processed it in R Studio 3.1 and present the summary below.

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Question Categories

We divided the questions into following categories, based on statistical factor analysis of the responses. We present the factor analysis in a later paper, as it is out of scope of this paper.

1. Demographics
2. Reading and Writing
3. Speaking and Listening
4. Study Material
5. Technology Tools
6. Learning Methods
7. Exams
8. Time Management
9. Confidence
10. Placements
11. Teachers
12. Lifestyle and Health
13. Gender Equality

The Questions

The 55 questions are given in the appendix 1; the left column is a short abbreviation for each question that we use for plotting graphs in R. The right column gives the full text of each question.

Interpreting the Results

The bar plots, responses 1 (No) to 5 (Yes) on the X-axis, the Y-axis is the count of the responses with that number. We used Google Survey to visualize the responses as bar charts, and *R Studio* version 3.1 for processing the survey results.

DATA ANALYSIS

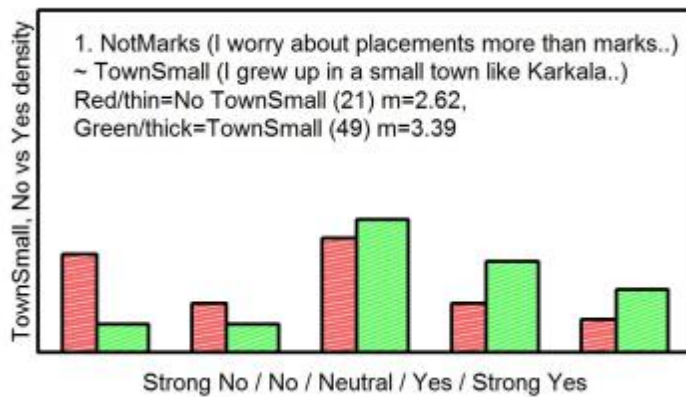
In the next section we analyse the strengths and weakness of rural vernacular students, and then in the following section present the extensive survey data.

Rural Vernacular Students

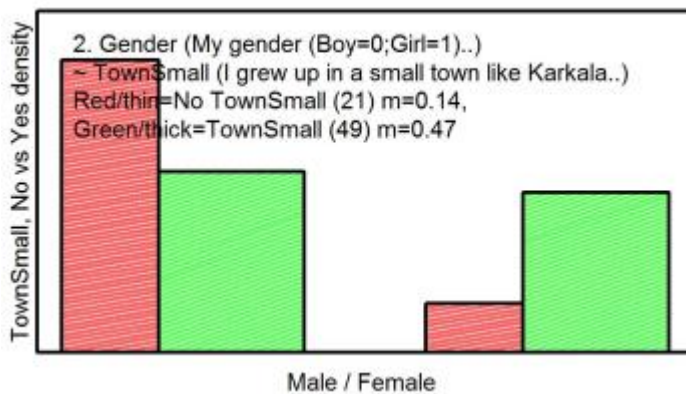
In this analysis, we are interested in analysing how the rural vernacular students differ from others in their learning traits. We use R code and the t-test to compute differences for each question, and present the ones which have significant difference.

Comparing opinions: Rural versus Urban

Rural students care more about placements than about marks than urban students (graph 1).



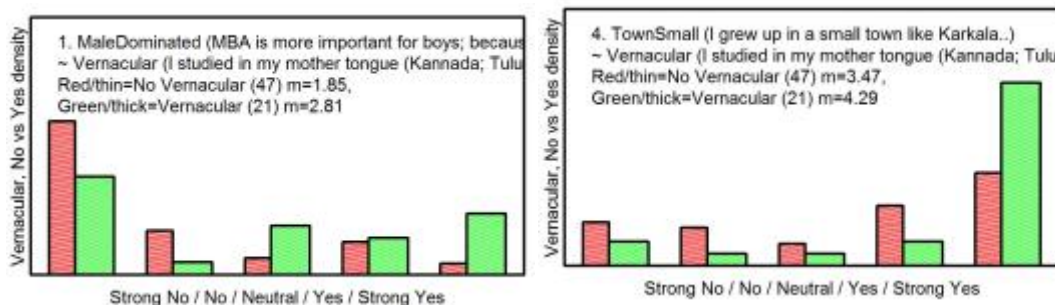
There are more female students from rural background than boys (graph 2).



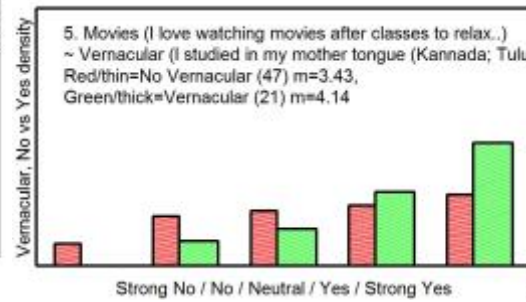
Comparing opinions: Vernacular versus English Speaking

In the survey we find 47 vernaculars and 21 students with English speaking background. There are six questions where their opinions differ.

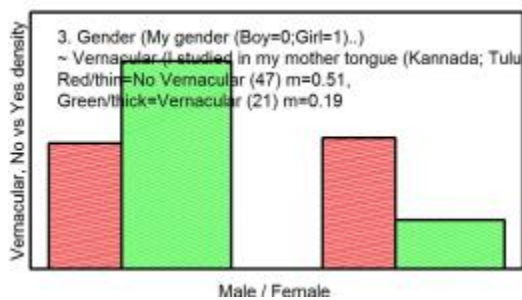
The vernaculars believe that MBA is more important for boys than girls (graph 1). Vernaculars are from rural background than the English speaking (graph 2).



More vernaculars like to read comics to improve their reading skills (graph 3), they also watch more movies after classes (graph 4).



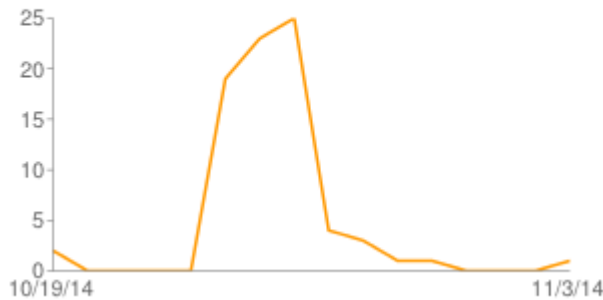
There are more boys from vernacular background than boys (graph 5). The English speaking students were more empowered by speaking on stage than the vernaculars (graph 6).



Survey Results

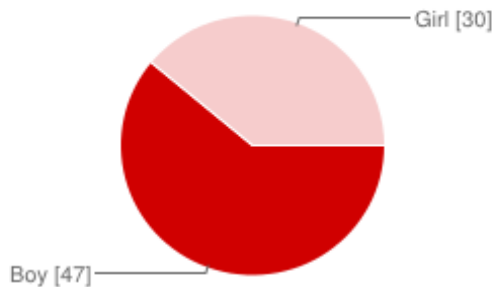
Without further ado, we present the summary of the 78 responses as of 3rd November 2014.

Number of daily responses

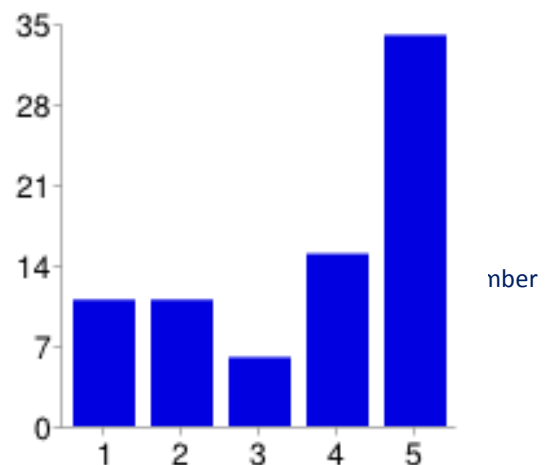


Demographics

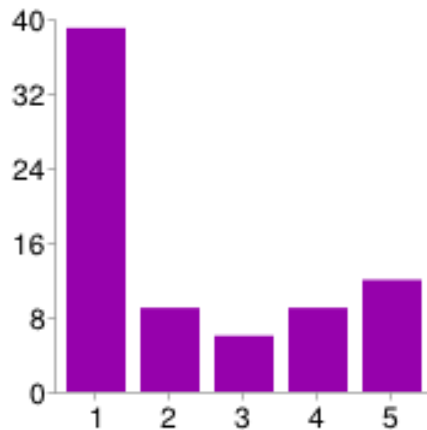
My gender



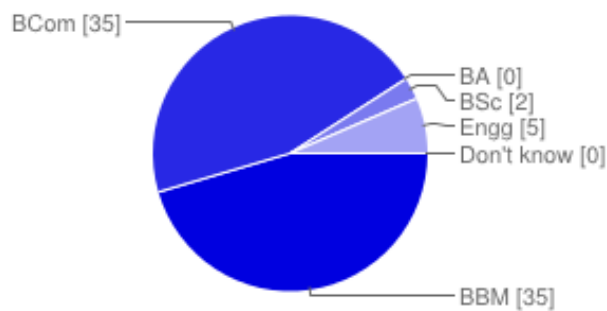
I grew up in a small town like Karkala



I studied in my mother tongue (Kannada, Tulu, Konkani, etc)

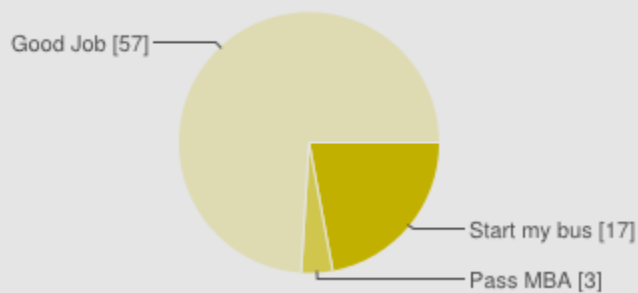


Before MBA, I studied



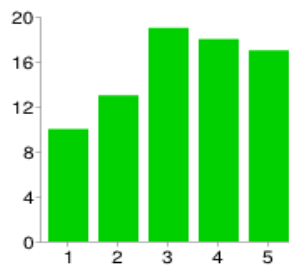
BBM	35	44%
BCom	35	44%
BA	0	0%
BSc	2	3%
Engg	5	6%
Don't know	0	0%

My dream during MBA



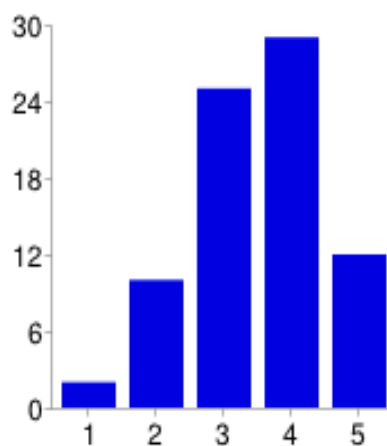
Start my business	17	22%
Pass MBA	3	4%
Good Job	57	72%

I want to study more after MBA

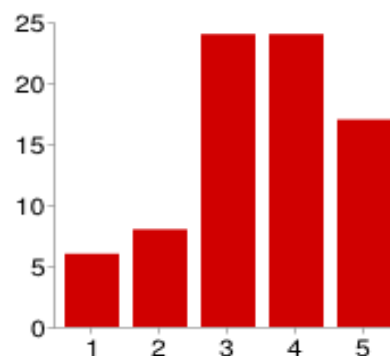


Reading and Writing

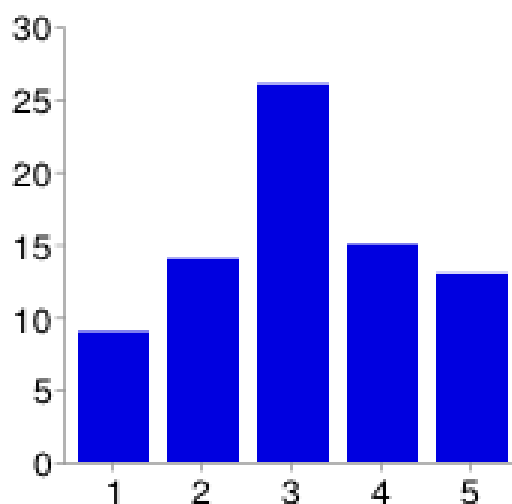
Reading is important for MBA



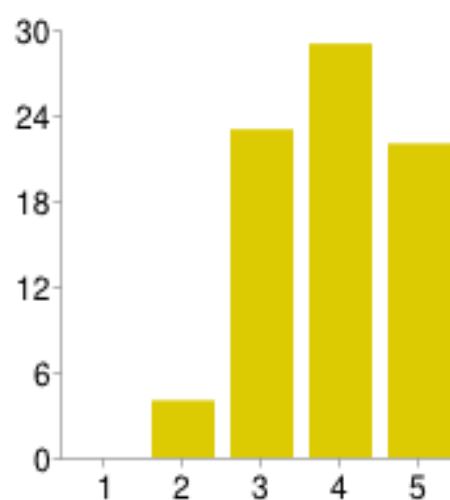
Reading comics helps in MBA



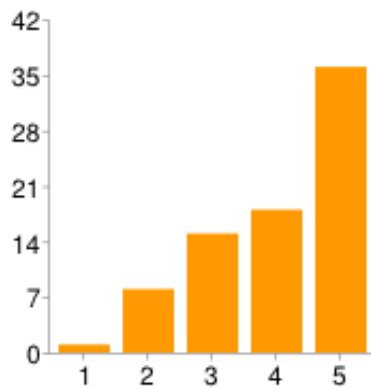
I read google news every morning



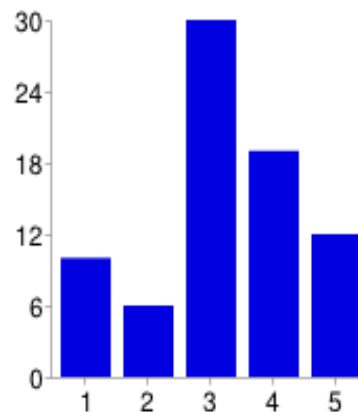
English Literature should be taught in MBA



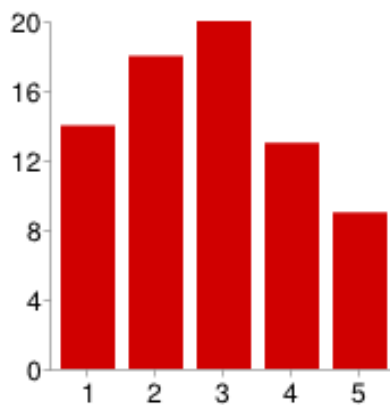
We must write notes in all classes



Writing is more important than reading

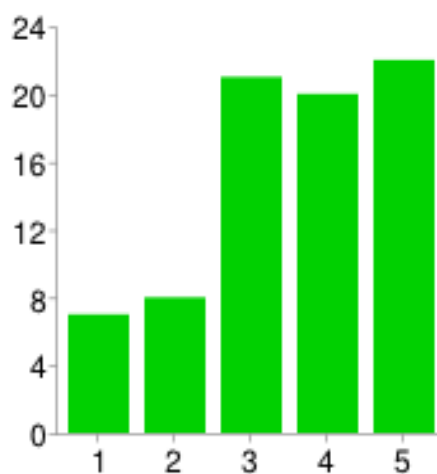


I write a diary to organize my thoughts

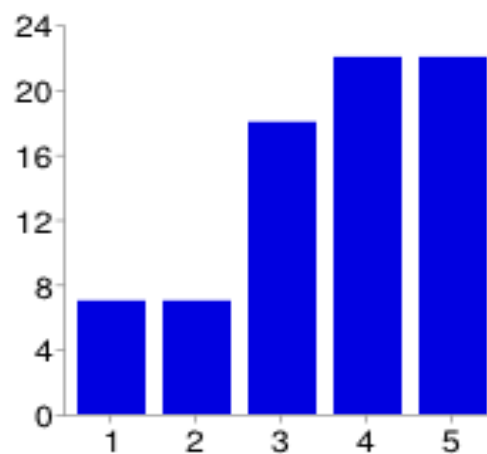


Speaking and Listening

Our course material is outdated, we need modern technology like tablets to learn.

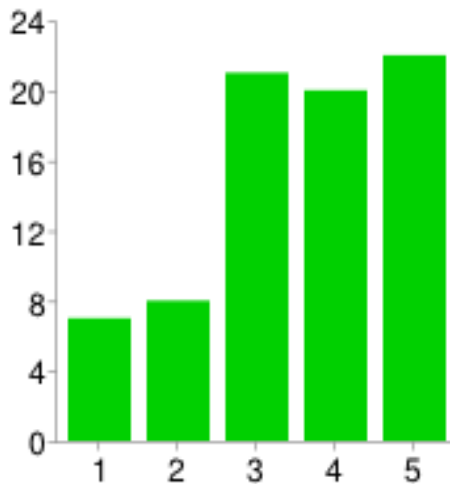


I study in a group after college hours

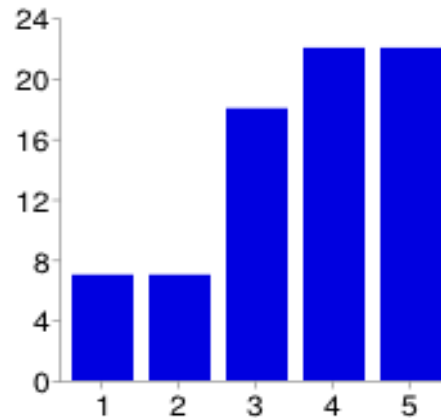


Study Material

Our course material is outdated, we need modern technology like tablets to learn.

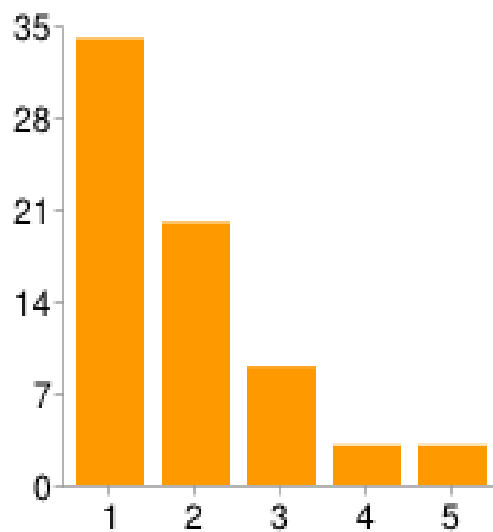


I study in a group after college hours

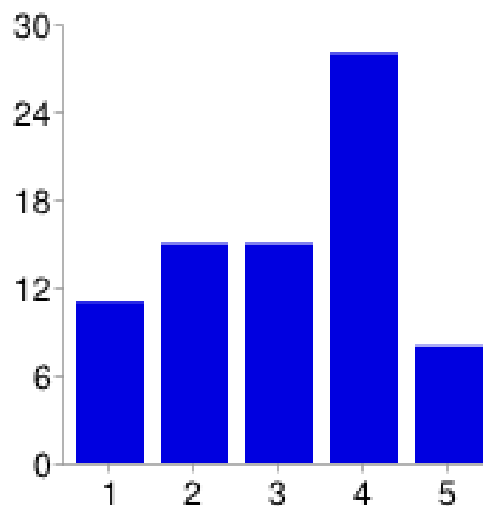


Technology Tools

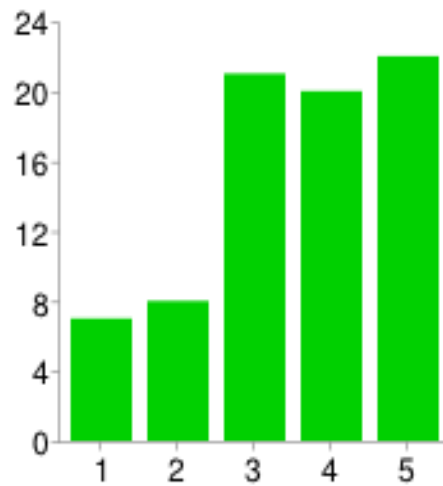
I have a web page



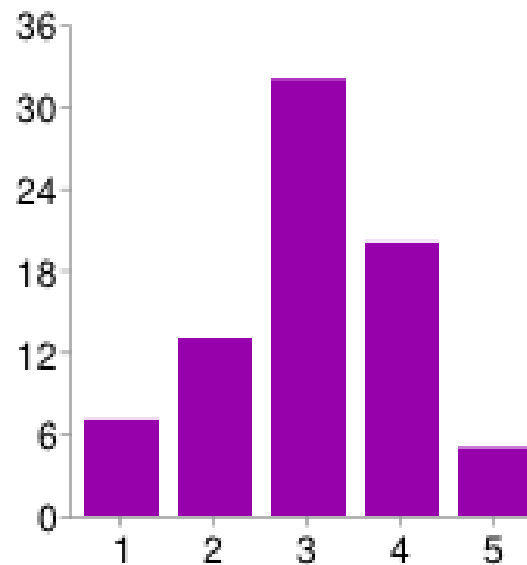
I write a blog



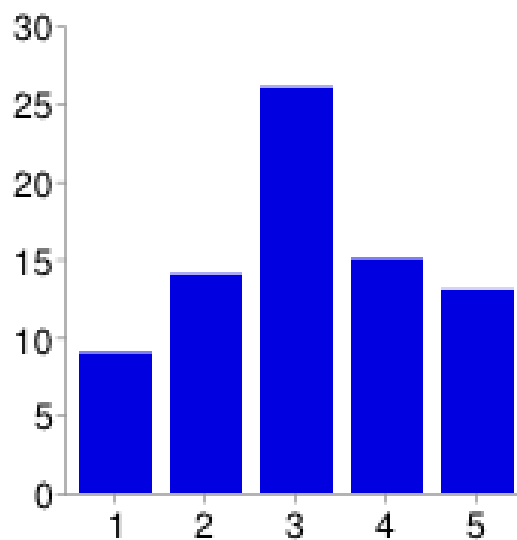
Our course material is outdated, we need modern technology like tablets to learn.



I know Excel well

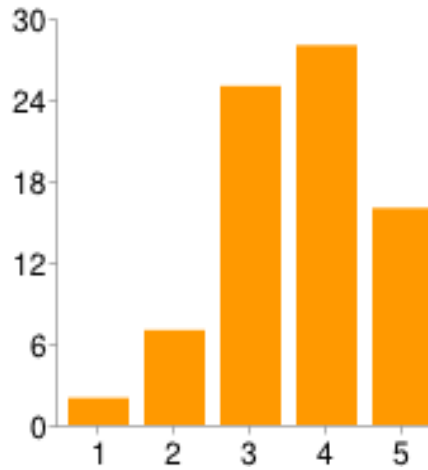


I read google news every morning

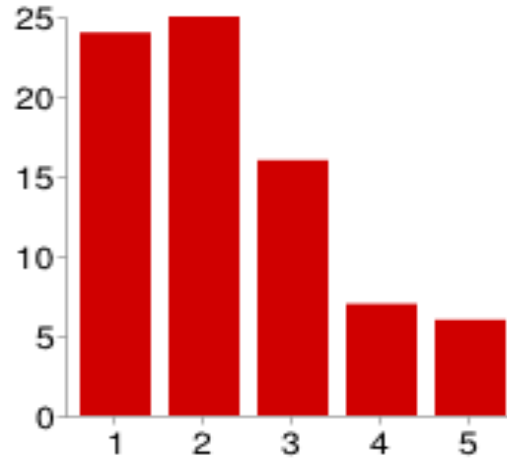


Learning Methods

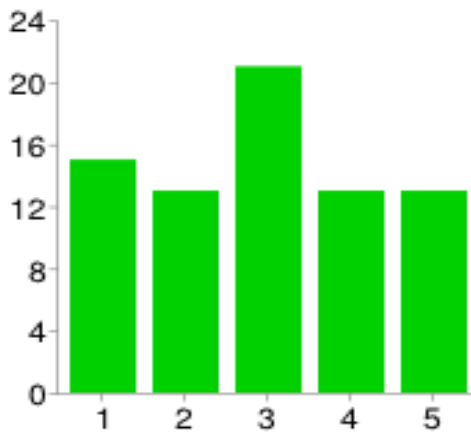
I learn best from fellow student presentations.



Teachers don't listen to us, they think we are trouble

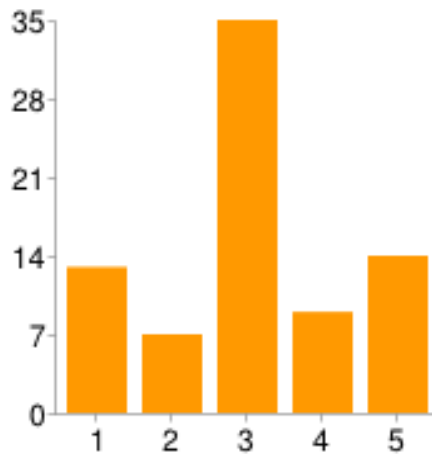


I like big classes

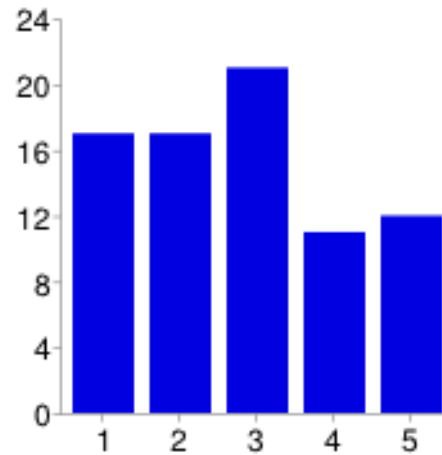


Exams

External exams are better than internal exams?

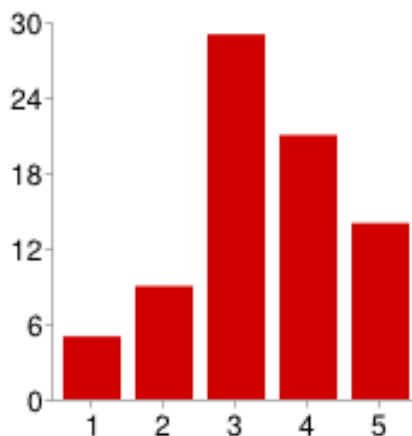


Multiple choice exams are easier than essay exams

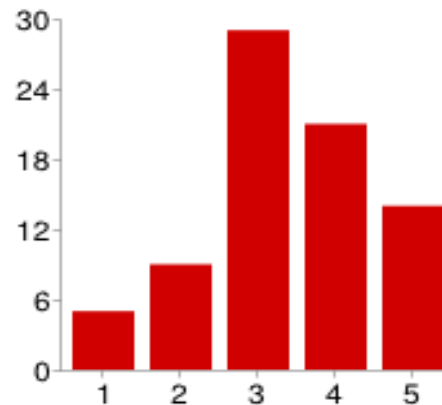


Time Management

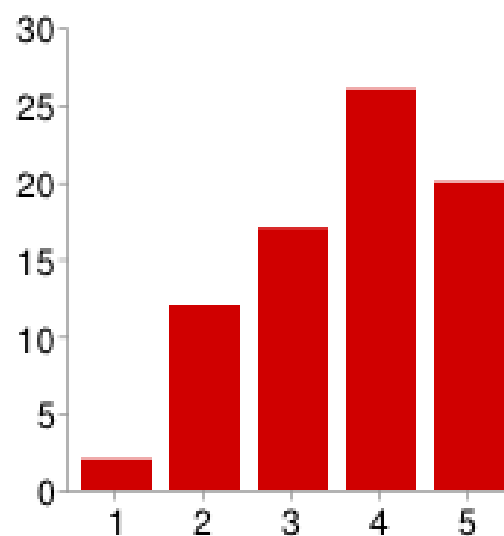
There are too many activities and not enough interesting course material



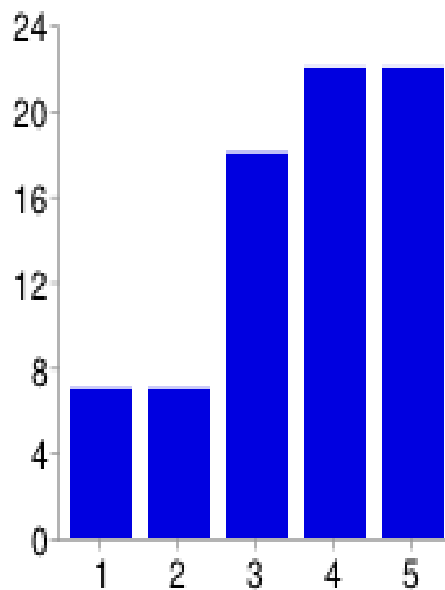
There are too many activities and not enough interesting course material



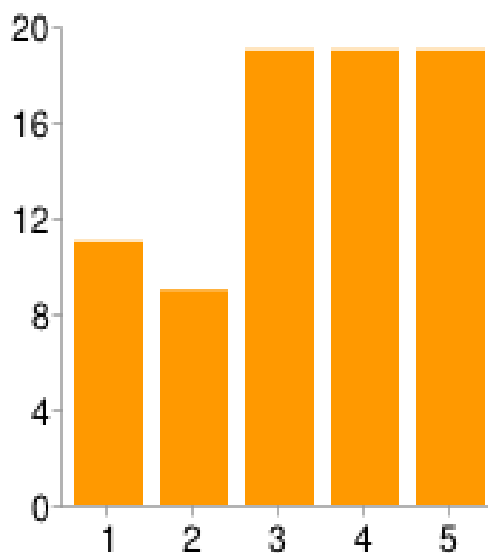
We have too many classes and not enough time to think



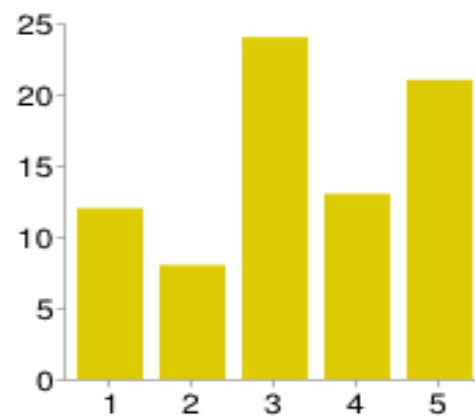
I study in a group after college hours



Extra curricular activities must be optional

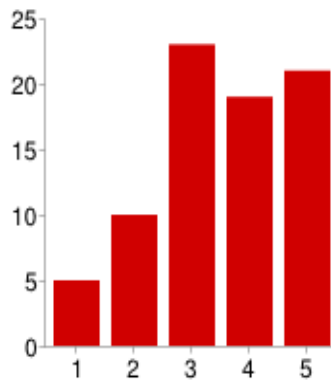


Saturdays should be holiday so we can go home

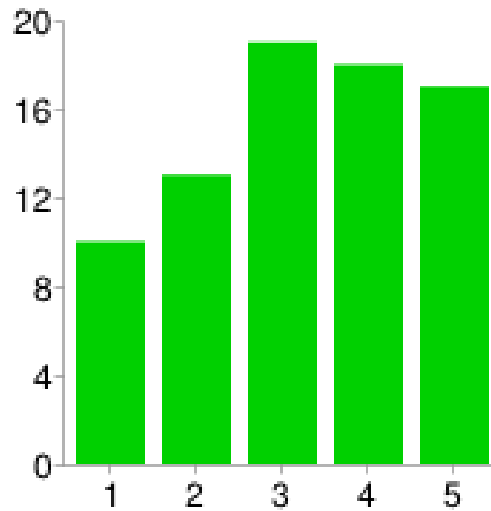


Confidence

I can change the world with my work

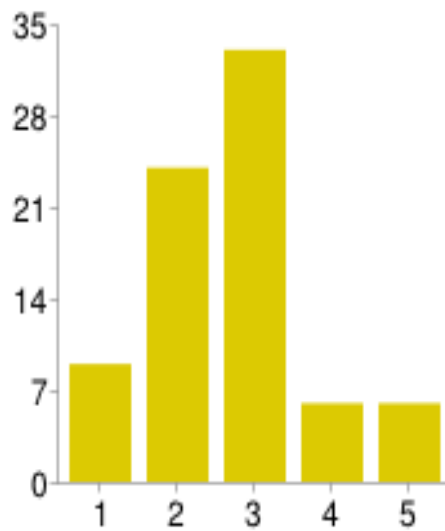


I want to study more after MBA

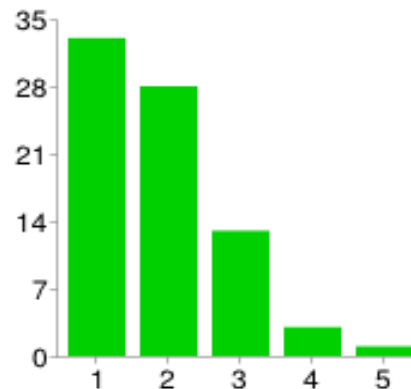


Placements

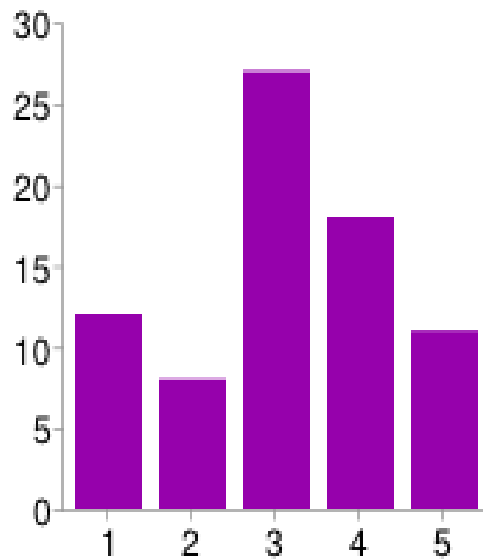
No matter what marks I get, placement is guaranteed



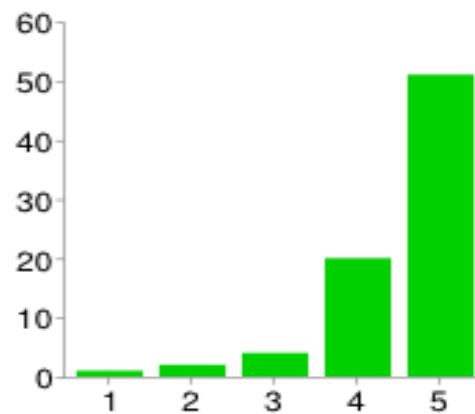
It is the college's responsibility to do placements.



I worry about placements more than marks

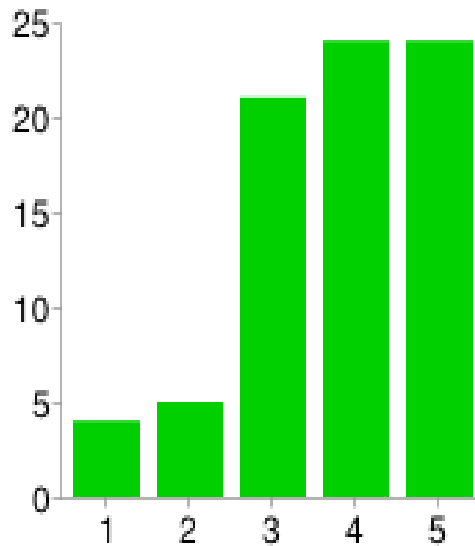


Speaking English is necessary for placements

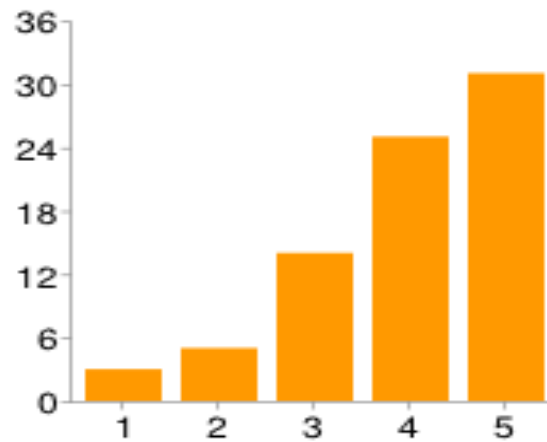


Teachers

We can talk to teacher anytime during office timings

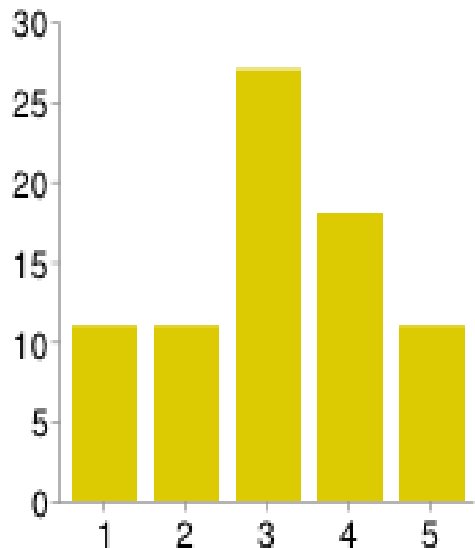


We are treated equally by college/teachers

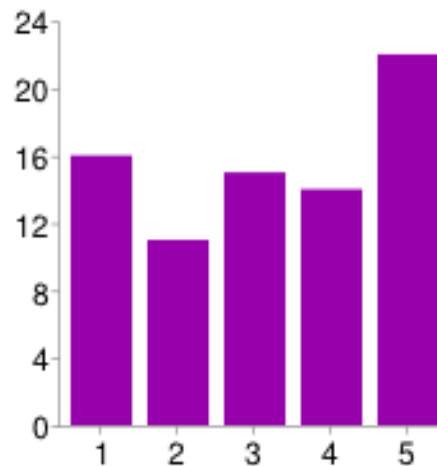


Lifestyle and Health

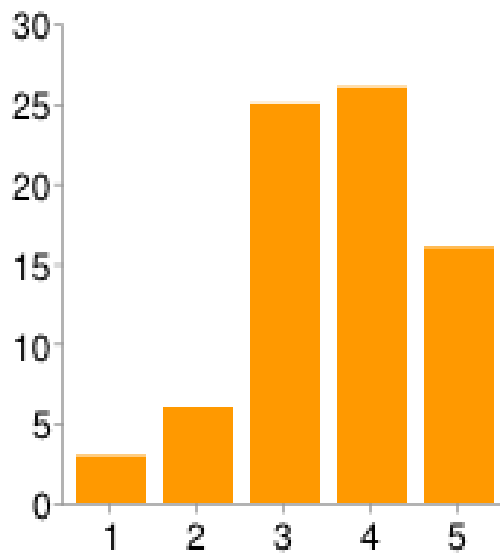
Our college needs to be more liberal



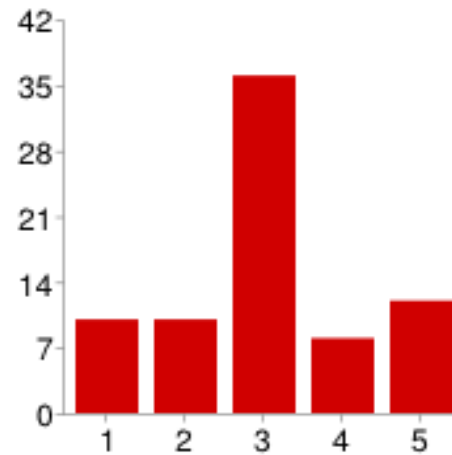
Dress code in college is old fashioned



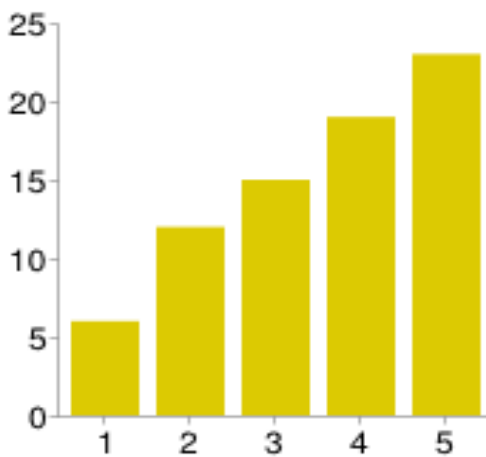
I have lots of Friends in college



College friends are true friends



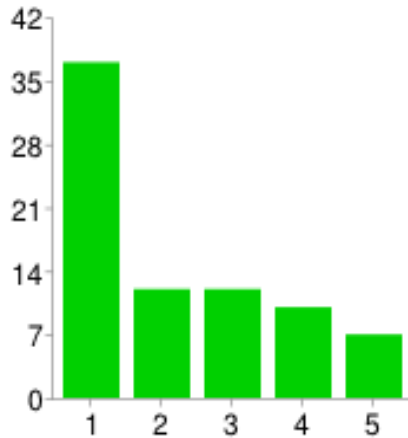
I love watching movies after classes to relax



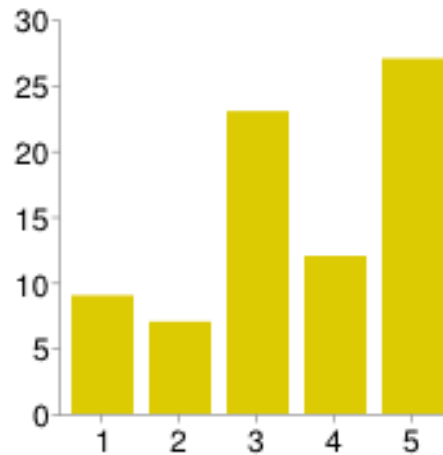
Gender Equality

The graphs below show that students are in general sensitivity to gender equality. However in this graph, it is not clear if boys and girls responded differently.

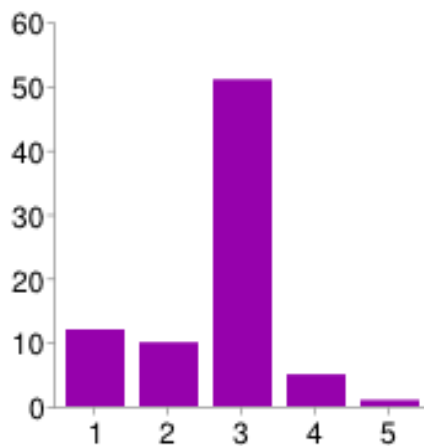
MBA is more important for boys, because they must get a job and support the family?



In a full bus, a boy should give seat to a girl standing?



Boys do better in Math than girls



Conclusion

We see some trends in the t-tests. The students who come from vernacular background do not consider MBA is as important for girls as for boys. The vernacular students like to read comics to improve their language skills. They also watch more movies for entertainment. They also are not as likely to come to speak on the stage and be empowered. The rural students are also more interested in placement than in marks, than their urban peers. It seems vying for *marks* is an urban peer pressure issue, that the college must also address, otherwise it skews the quality of learning.

Now that we are aware of these differences, some of these can easily be corrected by conscious effort by the faculty and students. For example rural students need to be made more aware of gender equality, asked to read to English comics, come and speak on stage, and shown more educational movies.

From the data, we see that Reading and Writing are considered equally important by the students. They are empowered by public speaking, debates and their peers.

We found Google Forms for surveys and R, extremely useful to quickly conduct a survey and analyse the learning habits of MBA students. We were able to close the survey within a week of sending it out, and it took another week to analyse the data, including the time spent on R.

Future work

In the future work, we would like to survey and study the correlation of academic outcomes (specifically grades and placement) with the study methods employed by the students. We would like to see which methods work best, and what changes a student could make, and the Institute could make to empower all its students to achieve overall excellence in the short time of two year MBA.

In the next paper under preparation by Kavya (2015), we describe how to statistically analyse this survey data in R, specifically we do correlation analysis of the response matrix, PCA (Principal Component Analysis) and Factor Analysis on the data to make better sense of the results.

Acknowledgements

We thank our Director Prof. Sankaran, Prof. Krishna Prasad and other JKHSIM faculty for their constant encouragement. We thank all the students who answered our questionnaire.

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Kavya M N, “*Using R to Statistically Analyse the Learning Habits of MBA Students*”, under preparation, 2/2015.

Google Survey Form, Retrieved Nov 12, 2014,
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“*The R Project for Statistical Computing*”, Retrieved from <http://www.r-project.org/>

Appendix 1. The Survey Questions

The left column is a short abbreviation for each question that we use for plotting graphs in R. The right column gives the full text of each question.

Q.01 Reading	-- Reading is important for MBA
Q.02 SleepRead	-- I sleep late and read at night

- Q.03 Confident -- I can change the world with my work
- Q.04 Chivalry -- In a full bus; a boy should give seat to a girl standing?
- Q.05 MaleDominated -- MBA is more important for boys; because they must get a job and support the family?
- Q.06 MaleChauvanist -- Boys do better in Math than girls
- Q.07 ExamMult -- Multiple choice exams are easier than essay exams
- Q.08 ExamExt -- External exams are better than internal exams?
- Q.09 ReadComics -- Reading comics helps in MBA comprehension
- Q.10 JobNoWorry -- No matter what marks I get; placement is guaranteed
- Q.11 JobByCollege -- It is the college's responsibility to do placements.
- Q.12 Inquisitive -- We should ask more questions in class
- Q.13 Debate -- Seminars must include debate at the end
- Q.14 WriteNotes -- We must write notes in all classes
- Q.15 ClassTooMany -- We have too many classes and not enough time to think
- Q.16 BigWeekend -- Saturdays should be holiday so we can go home
- Q.17 TeacherListen -- We can talk to teacher anytime during office timings
- Q.18 NotMarks -- I worry about placements more than marks
- Q.19 GrpStudy -- I study in a group after college hours
- Q.20 TeachersEq -- We are treated equally by college/teachers
- Q.21 ActivityTooMany -- There are too many activities and not enough interesting course material
- Q.22 Conservative -- Our college needs to be more liberal
- Q.23 TechNeeded -- Our course material is outdated; we need modern technology like tablets to learn.
- Q.24 OldDrs -- Dress code in college is old fashioned
- Q.25 ENews -- I read google news every morning
- Q.26 PeerPres -- I learn best from fellow student presentations.
- Q.27 TeacherPest -- Teachers don't listen to us; they think we are trouble
- Q.28 EngLit -- English Literature should be taught in MBA
- Q.29 EnglishJob -- Speaking English is necessary for placements
- Q.30 Listening -- Listening is more important than speaking English
- Q.31 Writing -- Writing is more important than reading
- Q.32 ActivityOpt -- Extra curricular activities must be optional
- Q.33 Gender -- My gender (Girl=1,Boy=0)
- Q.34 PostMBA -- My dream during MBA
- Q.35 ClassBig -- I like big classes
- Q.36 Vernacular -- I studied in my mother tongue (Kannada; Tulu; Konkani; etc)
- Q.37 TownSmall -- I grew up in a small town like Karkala
- Q.38 FriendsMany -- I have lots of Friends in college
- Q.39 FriendsTrue -- College friends are true friends
- Q.40 Movies -- I love watching movies after classes to relax
- Q.41 StudiesHigher -- I want to study more after MBA
- Q.42 ExcelExpert -- I know Excel well
- Q.43 Blogger -- I write a blog
- Q.44 Webpage -- I have a web page
- Q.45 WriteDiary -- I write a diary to organize my thoughts
- Q.46 Meditate -- I meditate to calm my mind and focus attention
- Q.47 Hobbies -- I have hobbies outside of studies to keep me busy
- Q.48 MBASad -- MBA is depressing
- Q.49 MBAHappy -- MBA classes give me joy and hope

- Q.50 FoodHealthy -- I eat healthy food in NITTE
Q.51 SpkEmpowered -- I spoke on stage and it was empowering
Q.52 TeacherEmpower -- Teachers empower me to do great things
Q.53 ProudParent -- My parents are more proud of my MBA than me.
Q.54 ProudI -- I am proud to be learning MBA
Q.55 Degree -- Before MBA; I studied (Bcom=2,BBM=3,BSc=4,Engg=5)