

The Relevancy of Gurukul System of Education in our Modern Education System to Transform the Engineering Education, An Experimental Study

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Abstract - India had a unique system of Education, known as “Gurukula Vidyabhyasam”, (Gurukul school of learning) in which the vidyarthi (student), the one who is seeking knowledge and skills, is admitted in the gurukuls (schools) where the he/she should stay with the Guru (teacher) in his school (Ashram) throughout his education. The concept was that the children should become independent and learn under great scholars in a serene environment. All the students lived together irrespective of their social status. Here in these gurukuls, through Value based education the students were molded as scholars fit for serving the society. In our present education system, no one is bothered about this value based education which leads to creation of a generation having no right attitude, values, ethics, morale, empathy, love and thereby becomes self centered. If the modern gurus share their knowledge with empathy and concern in a conducive environment in the traditional way without any selfish motive, it is possible to make a significant difference in the life of our students. In this paper I have proved the same and achieved the desired result.

I. INTRODUCTION

India had a unique system of Education, known as “Gurukula Vidyabhyasam”, (Gurukul school of learning) in which the vidyarthi (student), the one who is seeking knowledge and skills, is admitted in the gurukuls (schools) where the he/she should stay with the Guru (teacher) in his school (Ashram) throughout his education. The concept was that the children should stay away from their parents to become independent and learn under great scholars in a serene environment. All the students lived together irrespective of their social status. The Gurus were well versed with all kinds of knowledge Vedas, Upanishads, astronomy, politics, biology, science, philosophy, sociology, medicine, warfare, arts, logic, mathematics, literature, music, morale, ethics etc. Here in these gurukuls, through Value based education the students were molded as scholars fit for serving the society. In our present education system, no one is bothered about this value based education which leads to creation of a generation having no right attitude, values, ethics, morale, empathy, love and thereby becomes self centered.

II. ANCIENT GURUKUL SYSTEM

During those days of Gurukula Vidhyabhyasam, the “Guru” the teacher used to identify the inherent talents of his disciples and trained them to become perfect in it, no matter whatever may be that talent, in addition to the general studies. (Identifying the talents , skill and interest of a student and making him perfect in it, equivalent to the career and skill development in the modern system of education). Strict and perfect discipline was being maintained throughout the gurukul days. A disciple was supposed to participate in all the activities and attend all the duties assigned to him including the house chorus, studies, Exercises, practices and so on. This disciplined nature made him a perfect human being. In fact he was living in such an environment which prepared him to be a successful

human being. He gained knowledge, a set of skills, developed team work, shared responsibilities, understood the value of hard work, sincerity and dedication along with other moral values. The students had a strong fear of the Guru and hence had high regards and respect to him. All the students were extremely careful not to commit any mistakes which may make the Guru unhappy. Instead they used to compete among themselves to make him pleased and to be in his good books by doing the jobs perfect and learning the best. One important aspect in this concept was that the Fear of the Guru lead to discipline, Bhakthi, love and in turns all these sat gunas (pure qualities) lead to respect and success. (At present the above said qualities are missing from the students and hence their lives are miserable. Also the modern teachers have accepted teaching as a profession and are expecting remuneration/reward for the job. Whereas the ancient gurus were rendering selfless service to the humanity by imparting knowledge to the disciple and showing them the righteousness to lead a successful life)

III. MODERN EDUCATION

The present and modern system of education is by all means better than the ancient system. Knowledge is infinite. Every branch of knowledge witnessed explosive growth making specialists, wonder whether man can claim to know the ultimate in any realm. The task of learning something from everything is becoming difficult. Though the knowledge is vast and endless, we are fortunate to have any sort of information on finger tips which facilitates the learning process fast and can gain knowledge at rocket speed. But unfortunately our present generation is far away from the realities and they seem to be revolving on virtual. As the information is readily available in this age of ICT they believe that there is no meaning in learning the things/ gaining the knowledge. So they are inclined towards the use of artificial memories leaving the brain memory without any storage. In due course of time the brain memory turn out to be a useless entity which cannot register and recall data or think, analyze and make decision or judge things.

A student must possess certain qualities like a sense of curiosity, empathy, sensitivity to social issues and ethics in addition to his subject knowledge. To inculcate these attributes an interdisciplinary and residential system of education is needed like the Gurukul system of learning which was of interdisciplinary and residential in nature. Our ancient Universities like Nalanda, Takshashila and Vikramshila had followed the system of Gurukula parampara and offered a blended learning experience.

In the Universities the Engineering Education researchers are doing a wonderful job and publish research papers on their research areas like Active Learning, Project Based Learning, EPICS, Cap stone Experiments, Blended learning, Outcome Based Learning, Effective Teaching Learning techniques and so on. Numerous research articles are published world over. Their works are commendable and relevant to the modern era.

Though all the above pedagogues were available in our ancient education system, none of our researchers could identify those and make a study. If we rightly focus on the Gurukula Vidyabhyasam, one may have the glimpses of all those kinds of learning being used in the process of imparting knowledge to the students by the Guru. The concept was “learning by doing” equivalent to “the hands on” in this modern era. We had both passive and active learning in those days. Many of the concepts were taught by inductive reasoning which is passive learning while analytical reasoning which focuses on in depth involvement and engagement comes under active learning. The education provided on war fare, bow and arrow, horse riding, sword fighting all were hands on whereas the slokas, mantras, logic, maths etc were taught by using different techniques.

In my early school education, the class was asked to learn the multiplication tables from 1 to 16. We used to learn by recitation and repetition. This is only a process of memorization. Without understanding the logic behind this multiplication, I have by hearted the whole tables without knowing the need also. But the fact is that even at this age also I am well versed with these tables and I never forgot it. When I was in high school classes, easily I grabbed the logic behind the process. This means passive learning activities are also necessary to make the learning active.

The students of the present days are unable to do even simple calculations without using the modern devices. Means they are depending on the technologies at large than their own brain.

In my opinion, in the teaching learning process, we may use any technique or any methodology which is most appropriate to teach a particular concept effectively. It depends on the subject/topic/content to decide whether passive learning/active learning/blended learning. Collaborative learning or project based learning is appropriate or not. There is no hard and fast rule for a teacher or learner to use a particular method. The need of the hour is to make the concept clear to the students so that they learn it effectively and apply it wherever is required. We must train our students self learning skills and techniques.

IV. EXPERIMENTAL STUDY

My 53 students in II B.Tech I Semester class for a course in Probability and Statistics are divided in to 10 groups of 5 each. The group members are selected at random to ensure the groups consist of a mixture of students having different IQ level and thereby homogeneous. Then each group is given different problems to solve. For my study, I took a sample of 4 groups of 20 students. These groups are taken outside from the class rooms to the shade of trees just like the ambience of **Gurukul system**. Each group has to discuss among the group members of possible methods to solve the problem. Prior to the problem solving session the relevant concepts are explained once again to the groups separately and the groups started to solve their problems.





The following are the observed outcomes.

The leader of the group explained to the other members about the possible ways to solve it while others learned and at the same time the other students also expressed their ideas. They discussed among themselves why a particular method is applied in that problem while other methods are not applicable. When their doubt is clarified by the group members they could learn the concept clearly. Found that the learning is happening fast. A particular formula fails in one problem while the same is used in another. They clearly understood the application.

All the groups solved the problems given to them without any assistance from the instructor. The greatest benefit is that the students were actively involved in the problem solving and all have mastered it. Had I given this problem to the class of 53 at a time, some of them might have solved it while others would have left the class without knowing the technique. The environment created is so pleasant that they love to be out under the tree and participate rather than sitting within 4 walls. In between they were asked to relax by doing some breathing exercise. That helps to improve their memory and it relieves the stress associated with the learning. In fact they enjoyed it. Some management games are also conducted during the practice. The classes went on in a relaxed environment in which the teacher and the taught were so friendly not like the class in the conventional class rooms, where a kind of unexplained psychological distance is maintained by the teacher and the taught. However, I made the learning process smooth and fast.

Students were really enjoyed this practice and the attendance has been improved drastically. It shows that the students are very much keen to participate in this methodology in addition to the regular practices.

The only disadvantage was that the class strength is high so that could not handle the whole class at a time. So the study was on a sample group not in the regular class hours.

Population size : 53

Sample Size : 20 (4 groups)

Problems : 4 (1 problem for each group)

V. DATA ANALYSIS

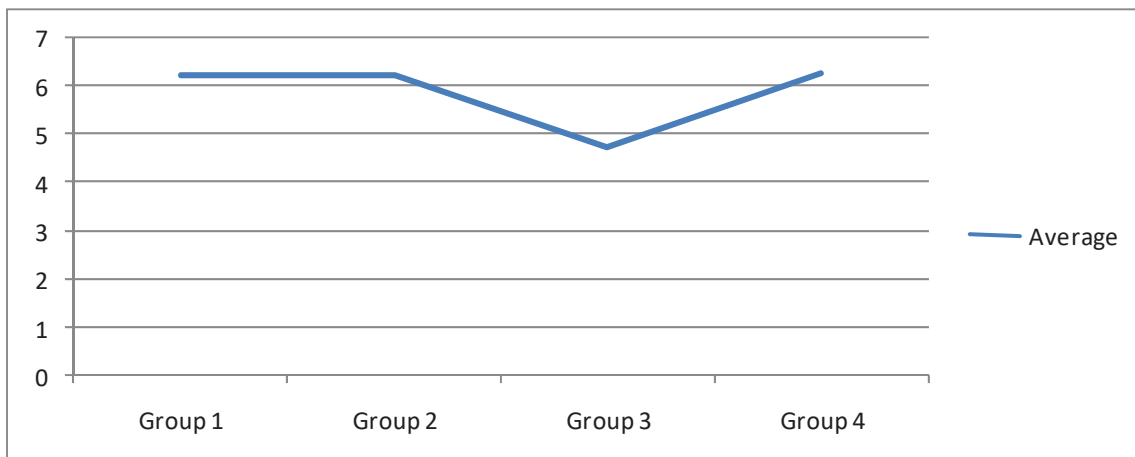
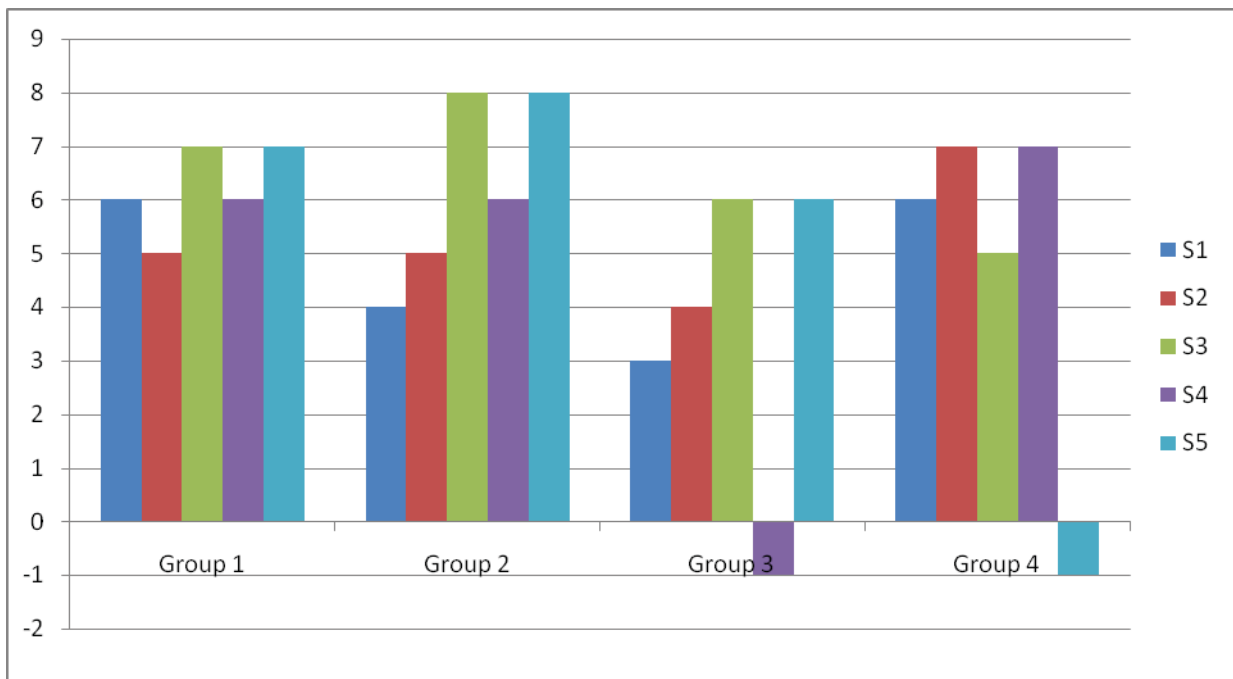
Test score of the sample students prior to the experimental study:

Mean score : 5.89

Group averages : Group I: 6.2, Group II : 6.2, Group III : 4.75, Group IV: 6.25

Standard deviation : 1.432

Group Performance graph :



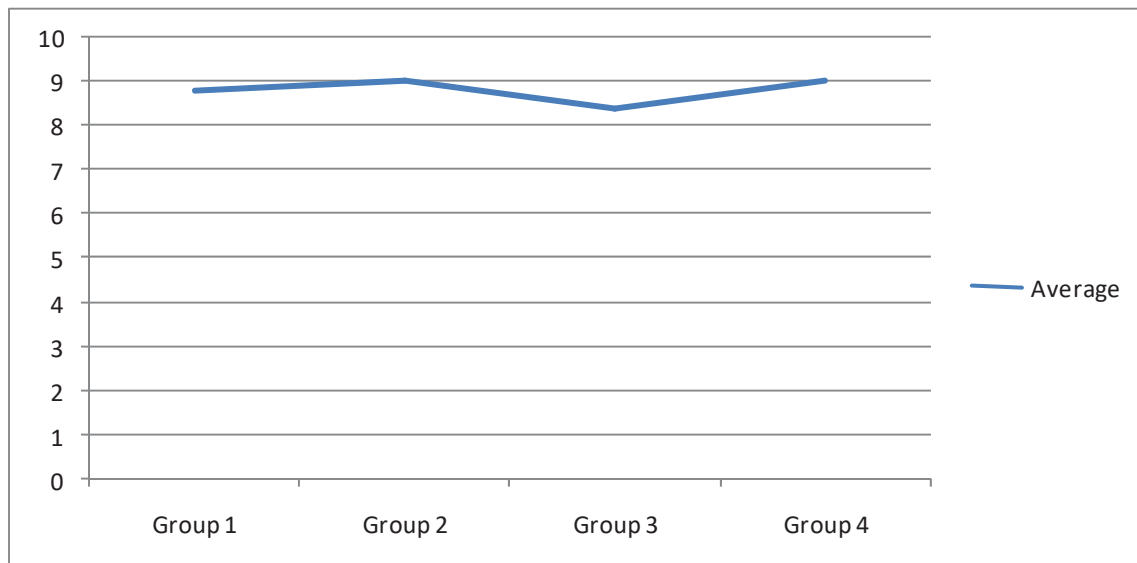
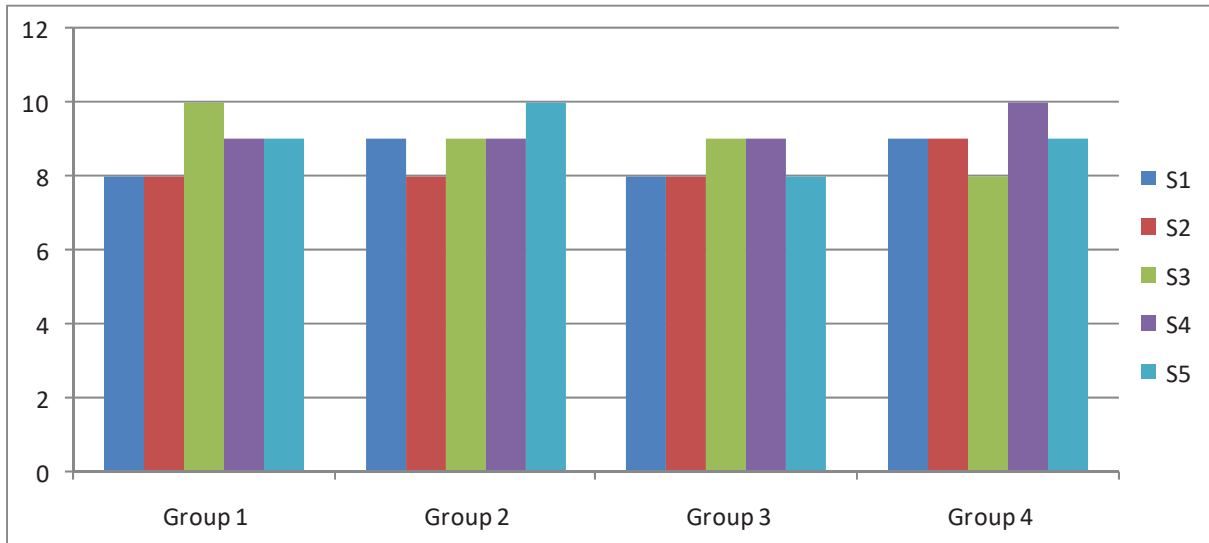
Test score of the same sample after the experimental study

Mean score : 8.8

Standard deviation : 0.809

Group Averages : Group 1: 9 Group 2 : 8.4 Group 3 : 9 Group 4 : 8.8

Group Performance graph:



Suggestions to Transform the teaching and learning in the Engineering Institutions in India.

1. A blend of the ancient Gurukula parampara with the modern methodology of instruction using the ICT Tools are strongly advocated. The residential system of living and learning is highly appreciated.
2. The revival of Guru- sishya relation which is a mile stone in the life of a human being in society and the art Of living which has been lost its sheen due to the negligence of people in the modern era has to be revived.

3. The size of the class should be ideal with strength of 30-35 students. Whereas at present, strength of a class Is 60 as per the AICTE norms.
4. The students must be made regular to the classes.
5. The teachers must be trained properly on how to handle the Ancient system and use the modern Methodologies (ICT) together to achieve the goal.
6. We may allow the teachers to use whatever methodology they would like to use for effective teaching Under the supervision.
7. Create a conducive learning environment in the institution.
8. Necessary and useful learning materials must be provided to the students in advance and must be Encouraged to read before attending the classes (Flipped class)
9. The present curriculum should ensure a strong foundation to the learners on which the learners themselves May be in a position to widen their knowledge than concentrating much on volume and content to be Taught.
10. Measure of how much the students learnt may be the thumb rule for deciding the efficiency of a Guru.
11. The Testing and evaluation of the students' knowledge and skills shall be continuous.
12. The teacher shall be well prepared for his own active methods to evaluate the students based on the subject, Methodology, skills and learning environment.
13. Ethics and values must be taught along with technical education.
14. We should touch the heart of a student to make him learn.

VI. CONCLUSION

The study result clearly shows that the average performance of the students had increased from 5.89 to 8.8, that is a whopping 49.4% improvement and with a significant 43.5% reduction in variance. Along with their performance improvement noticed drastic improvements in the group activity, attendance, enthusiasm, interest and willingness to learn in a lovely environment away from the traditional class rooms. **This Gurukul approach is highly effective if the strength of the class is a minimum.**