A STUDY ON ACCEPTANCE AND EXPECTATIONS FOR A WEB INTEGRATED COMPUTER BASED LEARNING SYSTEM FOR SCHOOL CHILDREN

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BONAFIDE CERTIFICATE

Certified that the Project report titled "A STUDY ON ACCEPTANCE AND EXPECTATIONS FOR A WEB INTEGRATED COMPUTER BASED LEARNING SYSTEM FOR SCHOOL CHILDREN" is the bonafide work of Mr. ISHAQ MOHAMMED ABBAS.T.M who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Abstract

ABSTRACT

The strength of the education structure lies in its foundation. School Education is therefore rightly regarded as the base depending on which one's life structure takes shape. This realization has resulted in the increasing demand of good schools in India. The corresponding rise of Indian schools to meet the demand of the growing population has also accelerated the competition among the Schools in India.

A start-up company has arrived at a new business model to develop and implement "**Web Integrated Computer based learning system for school children**". This system is aimed at providing advanced learning experience to our school children by harnessing the latest developments in the field of Information Technology. It will replace bulky text book and children will carry only a laptop to the school.

The proposed system is highly complicated software solution which requires huge efforts and funds for the development. The company is planning to invest large amount of its resources for this project and it will be profitable to the company only when the proposed system gets widely accepted by the schools in our society. The study is being undertaken to understand the mindset and preparedness of Indian schools to accept and adapt to the proposed Web Integrated Computer based learning system.

The study was conducted by demonstrating the idea of our software to the schools and parents, creating a brief understanding in the minds of potential users. An interview schedule and questionnaire was used to get the user perceptions and expectations from the software product. Then statistical tools like chi-square analysis, correlation, mode etc were use to interpret the results.

The study helped us to identify the key factors for the successful development and commercialization of this software product for Indian schools. It also provided an opportunity to understand the needs and expectation of different category of user of the proposed software. Based on the outcome, recommendations were made for implementing the Web Integrated Computer based learning system.

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I put forth our hearts and soul to thank **The Almighty** for being with me all through my achievements, success and failures.

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ISHAQ MOHAMMED ABBAS.T.M

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CHAPTER 1

INTRODUCTION

1.1 OUTLINE OF PROJECT WORK

The strength of the education structure lies in its foundation. School Education is therefore rightly regarded as the base depending on which one's life structure takes shape. This realization has resulted in the increasing demand of good schools in India. The corresponding rise of Indian schools to meet the demand of the growing population has also accelerated the competition among the Schools in India. And this is true for all kinds of city schools like residential schools, day- boarding schools, primary schools, secondary schools and the government schools.

Moreover new schools are also coming up across the cities and towns of India because of the renewed emphasis in education in the emerging "knowledge economy". But parents and guardians still face problems in choosing the right city school for their ward. There are many inherent problems in our education system and we believe use of advanced technology will make our schools more productive and efficient in the process of imparting knowledge.

As we know that Internet is the ocean of knowledge, therefore it is better to open (introduce) this ocean to all students as early as possible in their life. This can be done by introducing or using Information Technology & related tools in school education or by using World Wide Web as education delivery medium. The WWW is used not only to disseminate information but it also provides a great opportunity to extend learning outside space and time boundaries. The Web Based Education / Learning has the potential to meet the perceived need for flexible pace, place. The web allows education to go to the learner rather than the learner to their education.

1.2 PROBLEM IDENTIFIED AND CONFIRMED

Our traditional schooling methods have become burdensome for students with increasing workload. A recent analysis by Times of India says on an average school children carry 10 kgs a day. And no systematic Performance Management tools exist in schools. Also schools are yet to realize the full potential of softwares and Internet. Teachers are made to do time consuming administrative jobs like preparing mark list, ranking, progress cards etc. There exists vast communication gap between teachers and parents. Lack of visualization on critical subjects leads to misunderstanding in the minds of students. In this modern era children got to use computers at very young age and they get attracted towards all sorts of graphical interfaces. Therefore to make learning process effective teaching in schools is to be modernized using graphical and imaging tools.

1.3 BACKGROUND STUDY

- With the union HRD Ministry keen on educational reforms, the company is ready tap the wide opportunity by making use of advanced technology for our educational system
- Broadband usage in India is growing 20% per month, according to the Internet Service Providers Association of India (ISPAI)
- At present there are 47 million people use internet in India.
- But still 1 out of 3 computers do not have internet connectivity. – Juxt Consult India Online 2009 Study [1]
    - ✓ How Indians use Internet?
    - ✓ e-mail and IM (98 percent)
    - ✓ Job search (51 percent)
    - ✓ Banking (32 percent)

- ✓ Bill payment (18 percent)
- ✓ Stock trading (15 percent)
- ✓ Matrimonial search (15 percent)

All the research and surveys made till date in this country has showed positive growth in Internet usage. The growth happens both in terms of number of users and also the spread of infrastructure. Lot of schools, colleges, research institutions, business enterprises etc are using computers and internet for various purpose based on their need and interest. Internet Banking in recent times has gained prominence and lots of new users are enrolling into it in everyday.

Analyzing the use of computers in Indian schools shows that it is being used only/mainly for educational purpose only. Other than educational needs some schools use dedicated softwares for Billing, collection of fees, pay roll, Accounts Management etc. Today there are very few companies in Indian market when offer computer based learning system and they are primarily focused on graphical teaching methodologies rather than anything else.

1.4 NEED FOR THE PROJECT

The proposed system is highly complicated software solution which requires huge efforts and funds for the development. The company is planning to invest large amount of its resources for this project and it will be profitable to the company only when the proposed system gets widely accepted by the schools in our society. The study is being undertaken to understand the mindset and preparedness of Indian schools to accept and adapt to the proposed Web Integrated Computer based learning system. The study will also help the company to identify those features that are of prime interest to schools, teachers and parents. Identification of key features among the available many will help prioritization of efforts and funding for development. It will also help towards setting and achieving specific goals at each stages of the proposed software development.

1.5 OBJECTIVES OF THE STUDY

1.5.1 Primary Objective

- To Study on Acceptance readiness and Expectations for a Web Integrated Computer based learning system with specific focus on schools in Chennai.

1.5.2 Secondary Objectives:

- Prioritize the requirements.
- Identify additional features for the software.
- Identify the level of infrastructure upgradation required at schools.

1.6 SCOPE OF THE PROJECT

- The scope of the project is limited to the schools in Chennai
- Medium of education needs to be English only.
- The study is primarily focused on those schools having minimum infrastructure like internet connectivity.
- The study is classified into 3 categories of respondents viz. Parents, Teachers & Head of the Institution.

1.7 EXPECTED DELIVERABLES:

The key expected deliverables of this project is to identify the success factors in development and implementation of a software product for Indian schools. The study will also help to identify those features that are of prime interest to schools, teachers and parents. This study will help us determine the probability of acceptance by the society and success of the business model. The questionnaire and interview schedule

are designed to collect the best possible inputs from all category of respondents. The final deliverables of this project will be a recommendation based on the study and analysis of the survey data.

1.8 SUMMARY OF REVIEW OF LITERATURE

Review of Literature is carried-out by collecting and analyzing various relevant information regarding similar softwares available in the market, reports of different study focusing on certain parameters with respect to various Online/e-learning systems and methodologies. The important aspects, findings and key features are summarized below:

Acceptance of e-learning among distance learners: A Malaysian perspective by Bibiana Lim Chiu Yiong, Hong Kian Sam and Tan Kock Wah published in the year 2008[2] indicate that Distance learning and e-learning are rapidly becoming popular modes of studies among students and working adults worldwide. Also this study indicated that institutions offering distance learning via e-learning should provide some non-credit courses to improve students' acceptance.

An Investigation of Factors Influencing Healthcare Workers' Use and Acceptance of E-Learning in Post-School Healthcare Education by Marius MIKALSEN, Ståle WALDERHAUG, published in Medical Informatics in a United and Healthy Europe K.-P. Adlassnig et al. (Eds.),IOS Press, 2009[3] indicate states that E-learning benefits are realized when key features of e-learning are not only applied, but deemed useful, compatible with the learning process and supportive in order to reach the overall goals of the learning process. The results show that perceived compatibility and subjective norm explain system usage of the e-learning tool amongst the students.

Usability and acceptance od E-learning in statistics education, based on Computer by S. Poelmans, P. Wessa, K. Milis, E. Bloemen, C. Doom[4] states

System quality has a considerable impact on ease of use and does directly influence the students' intention to use the Computer Platform.

The progress of school education in India by Geeta Gandhi Kingdon, Global Poverty Research Group March 2007[5] provides an overview of school education in India. This paper examines schooling access in terms of enrolment and school attendance rates, and schooling quality in terms of literacy rates, learning achievement levels, school resources and teacher inputs.

Web Based School Education In India: Problems, Considerations, Approaches & Important Features Of Web-Based Learning Environment by Dr. B. V. Pawar, Department of Computer Science, North Maharashtra University, Jalgaon(M.S.)[6] states that for high quality education throughout India there must be some nationwide network, which provides equal quality education to all students, including the student from the rural areas and villages. The solution to is a Web-Based Learning system.

The online learning systems that exist today are simply web pages providing access to educational content. They do not integrate the various activities performed in a typical school environment. The offline learning systems available are software packages which need installation and serve as a kind of encyclopedia. They do provide graphics & animations to explain the subject. Some even have e-tutor which does the job of oral teaching basically through a pre-recorded audio.

Business Model & Benefits

CHAPTER 2

BUSINESS MODEL & BENEFITS

2.1 OVERVIEW

We are a start-up company planning to develop a software to implement "**Web Integrated Computer based learning system for school children**". This system is aimed at providing advanced learning experience to our school children by harnessing the latest developments in the field of Information Technology. This system will replace bulky text book and we visualize school carrying only a laptop to the school.

2.2 BUSINESS MODEL

We have planned to tie-up with publishers and school for implementing the system. The learning content based on the syllabi will be bought from different publishers and made available to the teachers and students over the web. The schools need not purchase any software license from us, they will be charged only a subscription fee for each student enrolled into our system. The subscription fee will include the cost of learning content provided online and other value added services. The publishers in turn get paid for each subscription made to access the content provided by them.

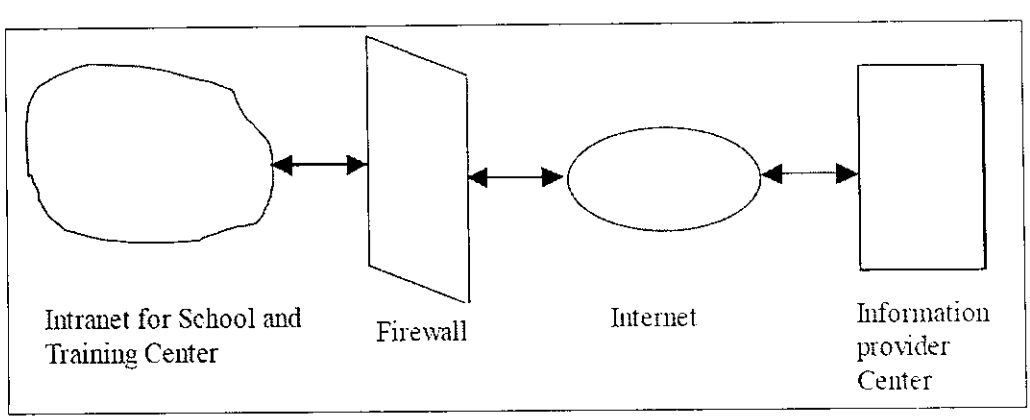

Fig 2.1 – Business Model and connectivity

2.3 KEY FEATURES OF THE SYSTEM

2.3.1 Benefits for Teacher

- Easy to deliver the subject with the **illustrations, pictures and graphics**.
- Upload examination marks and daily attendance into our system – Helps in preparing report.
- **One click Progress report** generation and send it by email to parents – eliminates manual work.
- **Performance tracker** for each student.
- Send performance reports to the parents online.
- Post **homework online** and make it easily accessible to the students.
- Easy tracking on status of tasks.

2.3.2 Benefits for the Head of the Institution

- Analyze reports and monitor the performance of each individual student or a class as and when required.
- Evaluate overall performance and identify the areas of improvements using our **graphical tools**.
- Effectively utilize teacher's time by eliminating manual task and assign other tasks – using **Task Manager** tool in our software.
- Send annual report and other information to the parents seamlessly.

2.3.3 Benefits for Parent

- Access the regular attendance of your children online using **Attendance Tracker**.
- Get Progress reports in your email inbox and other related information easily.
- **Monitor homework** and discuss performance related issues with the concerned teacher easily.
- **Schedule appointments** with concerned teacher/Principal to discuss issues related to your ward's performance.

2.3.4 Benefits for Students

- Online learning experience which help the students to access their learning material anywhere, anytime.
- Total replacement for bulky text books.
- **Self learning e-tutor.**
- Opportunity to learn lot other subjects based on one's own interest through publically available content, other than prescribed syllabi.
- Prepare their study plan effectively and schedule activities.
- Access homework and get updated on what happened in the school even when absent.
- Share notes and study materials with fellow students easily.

2.4 NEED FOR THE STUDY BEFORE IMPLEMENTATION

The proposed system is highly complicated software solution which requires huge efforts and funds for the development. The company is planning to invest large amount of its resources for this project and it will be profitable to the company only when the proposed system gets widely accepted by the schools in our society. The study is being undertaken to understand the mindset and preparedness of Indian schools to accept and adapt to the proposed Web Integrated Computer based learning system.

2.5 ADVANTAGES

- This business model do not requires schools to invest heavily on purchasing software user license.
- This will be a Web Hosted Application with 99.99%uptime -- hence it can be accessed from anywhere, anytime

- This works on a subscription based model. Only a subscription fee needs to be paid every year based on the number of users.
- Since this is an online application any updated made to the software will be instantly available to all users.
- Users do not pay anything to get the updated software.
- A PC with internet connection is sufficient to use this software, it do not require any software installation.

Research Methodology & Data Collection

CHAPTER 3

RESEARCH METHODOLOGY & DATA COLLECTION

3.1 METHODOLOGY

Methodology includes a collection of theories, concepts or ideas as they relate to a particular discipline or field of inquiry. Methodology refers to more than a simple set of methods rather it refers to the rationale and the philosophical assumptions that underlie a particular study relative to the scientific method. This is why scholarly literature often includes a section on the methodology of the researchers. This section does more than outline the researchers' methods (as in, "We conducted a survey of 100 people over a four week period and subjected the results to statistical analysis", etc.); it might explain what the researchers' ontological or epistemological views are.

A method is a tool that can help solve problems and reach new knowledge. This module will describe what methods we are using and how we are working towards solving the identified problem. In order to do this there are a series of steps to be followed and these steps are showed in figure below. Finally, we discuss the methodology problems and what has been made to overcome these problems in order to strengthen validity and reliability to this study.

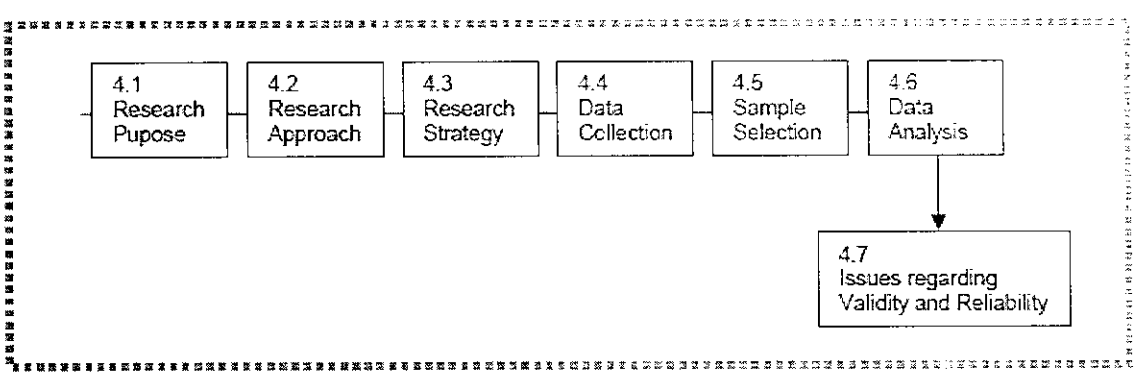

Fig 3. 1: Schematic presentation of the methodology

3.1.1 Research Design

- Type of Project : Survey Type
- Target respondents: School Principals, Teachers & Parents
- Assumptions: Parents are computer literates and users of internet
- Sampling Method : Purposive Sampling
  - Purposive sampling starts with a purpose in mind and the sample is thus selected to include people of interest and exclude those who do not suit the purpose. Purposive sampling is non-probability method.

- Type of Data: Primary Data
- Instrument for Data Collection: Interview Schedule & Questionnaire
- Tools for Analysis: Percentage Analysis, Chi-Square Analysis, Correlation Analysis, Mode.

3.1.2 Sample Data Details

Sample size of Institutions: 30

Sample size of Teachers: 60

Sample size of Parents: 150

3.1.3 Method of Study

The study was conducted by demonstrating the idea of our software to the schools and parents, creating a brief understanding in the minds of potential users. An interview was also conducted to get the user perceptions and expectations from the software product. Also a questionnaire was given to the respondents to rate the various features and benefits of the software. Analysis were made on the data collected to get a fair knowledge of success rate, key features from user perception, readiness to use technology for teaching etc

3.2 ASSUMPTIONS, CONSTRAINS & LIMITATIONS

The basic assumption made in this study is that the school have minimum basic IT infrastructure in place and the target responds are computer literates. Also this can be applied to English medium schools only and the software does not support any other language at this stage. The study is limited to selected schools in Chennai only.

3.3 DETAILS OF PILOT STUDY

A pilot study was conducted with 10 respondents to ensure the correctness and accuracy of data being collected. An initial questionnaire was prepared for three categories of respondents viz. Head of the Institution, Teachers and parents. Using the questionnaire, a survey was made for each of the three categories as a pilot study. Based on the inputs from the pilot study few modifications were incorporated into the questionnaire. The modified questionnaire is then used to collect data from all respondents. The pilot study helped to shape our questionnaire to be best understood by the target respondents and hence making the data collected more accurate.

3.4 DATA PROCESSING

Data processing is process of converting the collected data in to useful information from which the user can come to a conclusion. An unprocessed data is mere a number and there is no use.

3.5 TOOLS FOR ANALYSIS

Data collected during the project was processed to get some useful information. No solution could be obtained with unprocessed data. To analyze the data collected during this project, different tools like percentage, chi-square test, correlation analysis and modal ranks are used.

3.5.1 Chi-Square Test

Chi-square is used to assess two types of comparison: tests of goodness of fit and tests of independence. A test of goodness of fit establishes whether or not an observed frequency distribution differs from a theoretical distribution. A test of independence assesses whether paired observations on two variables, expressed in a contingency table, are independent of each other – for example, whether people from different regions differ in the frequency with which they report that they support a political candidate.

The first step in the chi-square test is to calculate the chi-square statistic. In order to avoid ambiguity, the value of the test-statistic is denoted by X^2 rather than χ^2: this also serves as a reminder that the distribution of the test statistic is not exactly that of a chi-square random variable. The chi-square statistic is calculated by finding the difference between each observed and theoretical frequency for each possible outcome, squaring them, dividing each by the theoretical frequency, and taking the sum of the results. A second important part of determining the test statistic is to define the degrees of freedom of the test: this is essentially the number of observed frequencies adjusted for the effect of using some of those observations to define the "theoretical frequencies".

Calculating the test-statistic

The value of the test-statistic is

$$X^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i},$$

where

X^2 = the test statistic that asymptotically approaches a χ^2 distribution.

O_i = an observed frequency;

E_i = an expected (theoretical) frequency, asserted by the null hypothesis;

n = the number of possible outcomes of each event.

The chi-square statistic can then be used to calculate a p-value by comparing the value of the statistic to a chi-square distribution. The number of degrees of freedom is equal to the number of cells n, minus the reduction in degrees of freedom, p.

The result about the number of degrees of freedom is valid when the original data was multinomial and hence the estimated parameters are efficient for minimizing the chi-square statistic. More generally however, when maximum likelihood estimation does not coincide with minimum chi-square estimation, the distribution will lie somewhere between a chi-square distribution with n - 1 - p and n - 1 degrees of freedom.

3.5.2 Correlation Analysis

In statistics, the Pearson product-moment correlation coefficient (sometimes referred to as the PMCC, and typically denoted by r) is a measure of the correlation (linear dependence) between two variables X and Y, giving a value between +1 and - 1 inclusive. It is widely used in the sciences as a measure of the strength of linear dependence between two variables. It was developed by Karl Pearson from a similar but slightly different idea introduced by Francis Galton in the 1880s.The correlation coefficient is sometimes called "Pearson's r."

Pearson's correlation coefficient between two variables is defined as the covariance of the two variables divided by the product of their standard deviations:

$$\rho_{X,Y} = \frac{\operatorname{cov}(X,Y)}{\sigma_X \sigma_Y} = \frac{E[(X-\mu_X)(Y-\mu_Y)]}{\sigma_X \sigma_Y},$$

The above formula defines the *population* correlation coefficient, commonly represented by the Greek letter *?* (rho). Substituting estimates of the covariances and

variances based on a sample gives the *sample correlation coefficient*, commonly denoted r :

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2}\sqrt{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}}.$$

The correlation coefficient ranges from −1 to 1. A value of 1 implies that a linear equation describes the relationship between X and Y perfectly, with all data points lying on a line for which Y increases as X increases. A value of −1 implies that all data points lie on a line for which Y decreases as X increases. A value of 0 implies that there is no linear correlation between the variables.

More generally, note that

$$(X_i - \bar{X})(Y_i - \bar{Y}) > 0$$

if and only if X_i and Y_i lie on the same side of their respective means. Thus the correlation coefficient is positive if X_i and Y_i tend to be simultaneously greater than, or simultaneously less than, their respective means. The correlation coefficient is negative if X_i and Y_i tend to lie on opposite sides of their respective means.

3.5.3 Mode

In statistics, the mode is the value that occurs the most frequently in a data set or a probability distribution. In some fields, notably education, sample data are often called scores, and the sample mode is known as the modal score.

Like the statistical mean and the median, the mode is a way of capturing important information about a random variable or a population in a single quantity. The mode is in general different from the mean and median, and may be very different for strongly skewed distributions.

The mode is not necessarily unique, since the same maximum frequency may be attained at different values. The most ambiguous case occurs in uniform distributions, wherein all values are equally likely.

Unlike mean and median, the concept of mode also makes sense for "nominal data" (i.e., not consisting of numerical values). Unlike median, the concept of mean makes sense for any random variable assuming values from a vector space, including the real numbers (a one-dimensional vector space) and the integers (which can be considered embedded in the reals).

Analysis & Interpretation of Data

CHAPTER 4

ANALYSIS & INTERPRETATION OF DATA

4.1 DATA ANALYSIS

Any data should be analyzed and processed to get useful information. An unprocessed data is mere a number and any useful information could not be get. For this project work the 3 sets of data are collected and processed. The first set of data was gathered from the Head of the Institutions (Schools), the second set of data was collected from the Teachers across different schools and the third was from parents of the school children. The reason for collecting the 3 set is to have a detailed analysis about the expectations, level of interest and data from all categories of people who could be benefited from the implementation of the proposed software system. To process the data gathered statistical tools are used. In this project percentage analysis is primarily used for data analysis.

4.2 QUESTIONNAIRE & DATA

Customized questionnaires were designed after careful analysis to gather data from different category of target respondents. Three separate set of questionnaires was designed to collect date from parents, teachers and Head of the Institution. The parent questionnaire is mainly focused on those specific features proposed particularly for parents concentrating mostly on the performance and monitoring related areas of their students. The teacher's questionnaire talks about teaching aids, tools to perform various administrative functions and also the overall performance management of a class. The questionnaire for head of the institution deals with the factors relating to the actual implementation of the proposed software system in schools. It also questions to evaluate the importance of features that are specially designed to be used by the head of the institutions. Based on the decided sample size target respondents are selected and data was collected.

4.3 PERCENTAGE ANALYSIS

Head of the Institution

Table 1: Use of advanced technology will improve the overall efficiency of my school.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	3	10.00
Agree	18	60.00
Neutral	6	20.00
Disagree	3	10.00
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.1 - Advanced Technology for improving overall efficiency

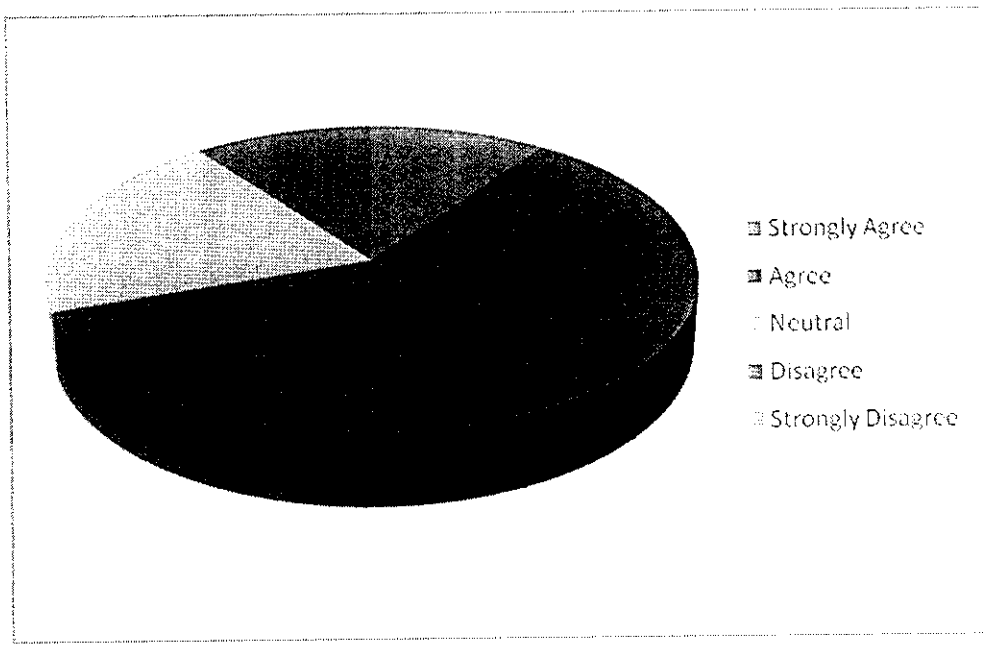

Fig 4.1 - Advanced Technology for improving overall efficiency

Interpretation:

The data presented from the questionnaire clearly shows that 70% of schools believe that use of advanced technology will improve their performance and eager to acquire it. Only a negligible number of schools do not bother making use of latest technology in their schools.

Head of the Institution

Table 2: This software will help us deliver knowledge in a better way by use of graphics, videos, and demonstrations.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	8	26.67
Agree	14	46.67
Neutral	8	26.67
Disagree	0	0.00
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.2 - Deliver knowledge better using graphical tools

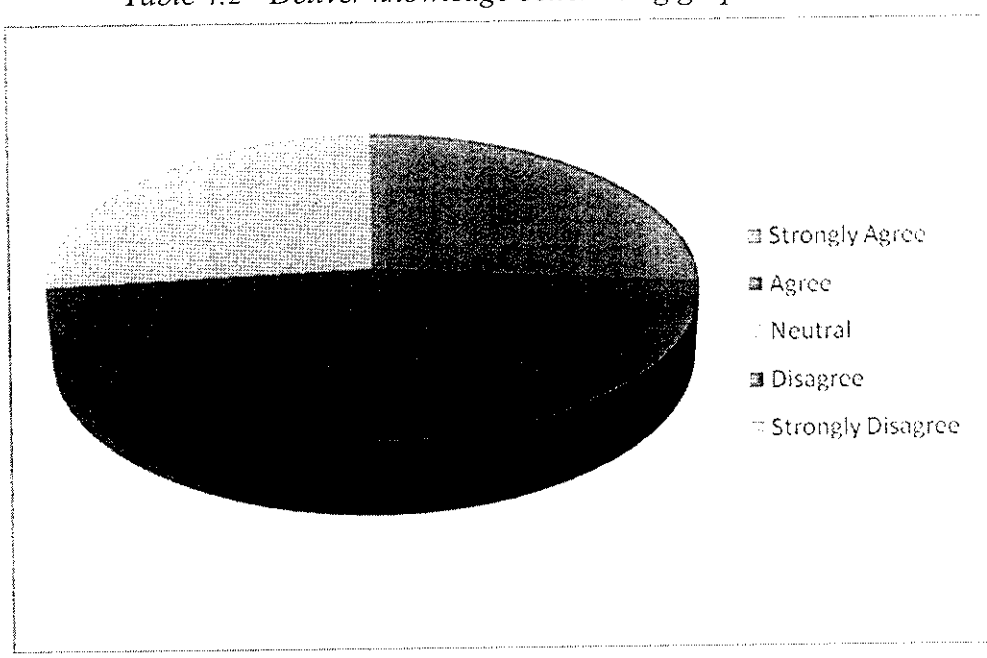

Fig 4.2 - Deliver knowledge better using graphical tools

Interpretation:

This particular data emphasize on the use of graphics, videos, and demonstrations in classrooms for teaching. The collected date shows that the schools are very much aware of the latest techniques to enhance the learning experience of the students.

Head of the Institution

Table 3: This software will help me to plan and utilize the time of teaching faculty productively.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	4	13.33
Agree	15	50.00
Neutral	10	33.33
Disagree	1	3.33
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.3 - Plan and utilize the time of teaching faculty productively

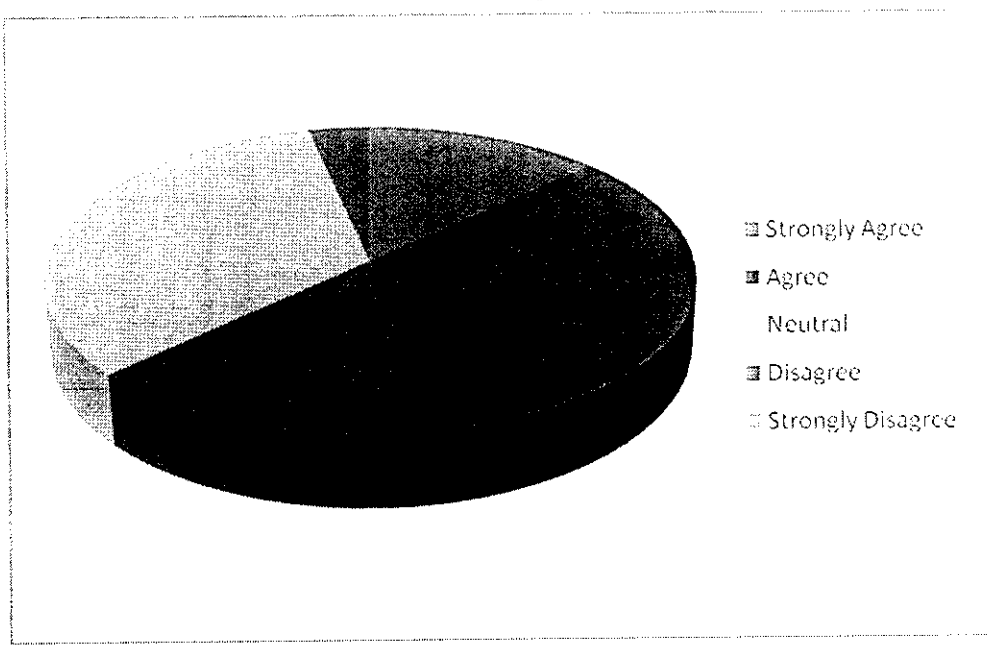

Fig 4.3 - Plan and utilize the time of teaching faculty productively

Interpretation:

While majority of the schools agree that software could help them on planning and time management they are not very keen on it. They do not provide much importance to this feature. This can be understood from about one third of respondents opting for neutral

Head of the Institution

Table 4: It will be very useful to monitor and track the activities of every student right from my desk using the software.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	7	23.33
Agree	17	56.67
Neutral	6	20.00
Disagree	0	0.00
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.4 - Monitor and track the activities of every student

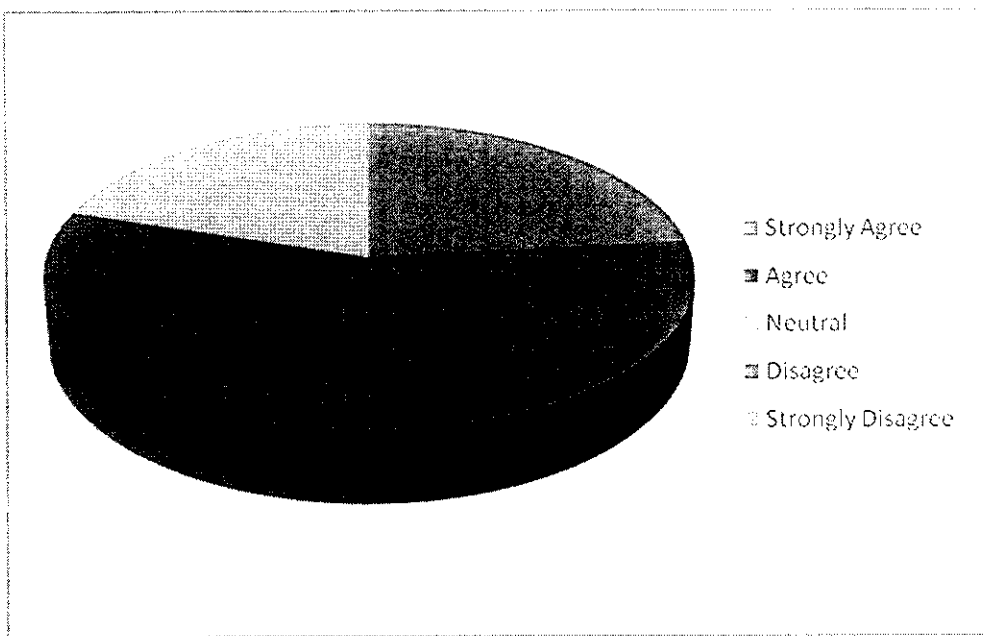

Fig 4.4 - Monitor and track the activities of every student

Interpretation:

The results show that the schools agree that it will be very useful to monitor and track the activities. Around 80% agree with the use of software.

Head of the Institution

Table 5: The graphical performance management to helps me to deeply analyze and identify the areas of improvement for my school.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	8	26.67
Agree	14	46.67
Neutral	8	26.67
Disagree	0	0.00
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.5 - Graphical performance management

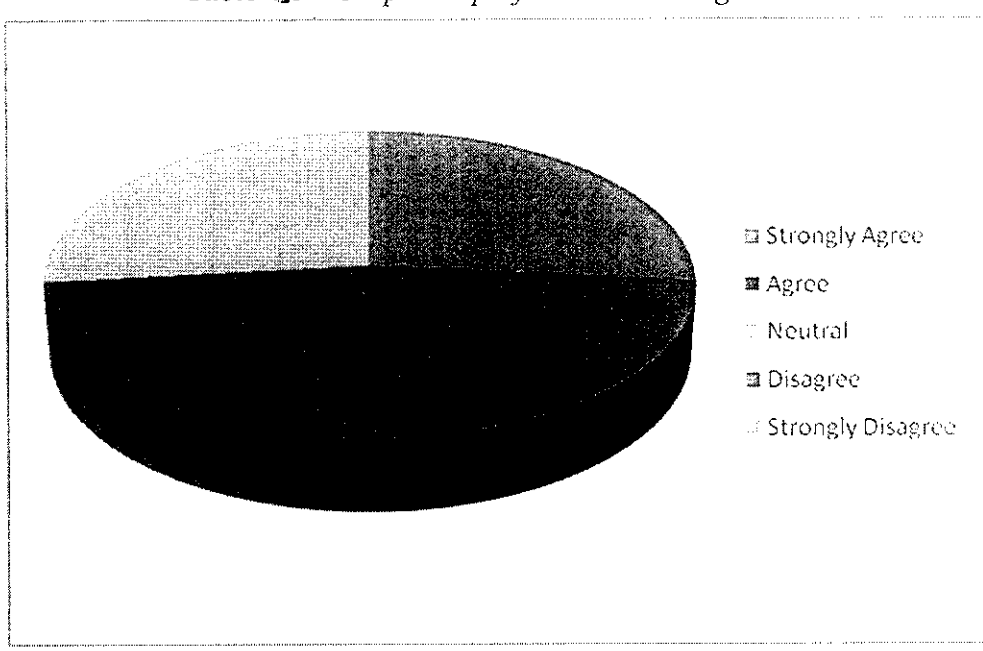

Fig 4.5 - Graphical performance management

Interpretation:

Except for the few schools who opt to neutral about the use of graphical tools, over 75% of our sample population agrees with software based performance management system.

Head of the Institution

Table 6: The additional learning materials like wiki links, pdfs on various topics other than those prescribed in the syllabus will make our students competitive.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	7	23.33
Agree	13	43.33
Neutral	10	33.33
Disagree	0	0.00
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.6 - Additional learning materials like wiki links, pdfs

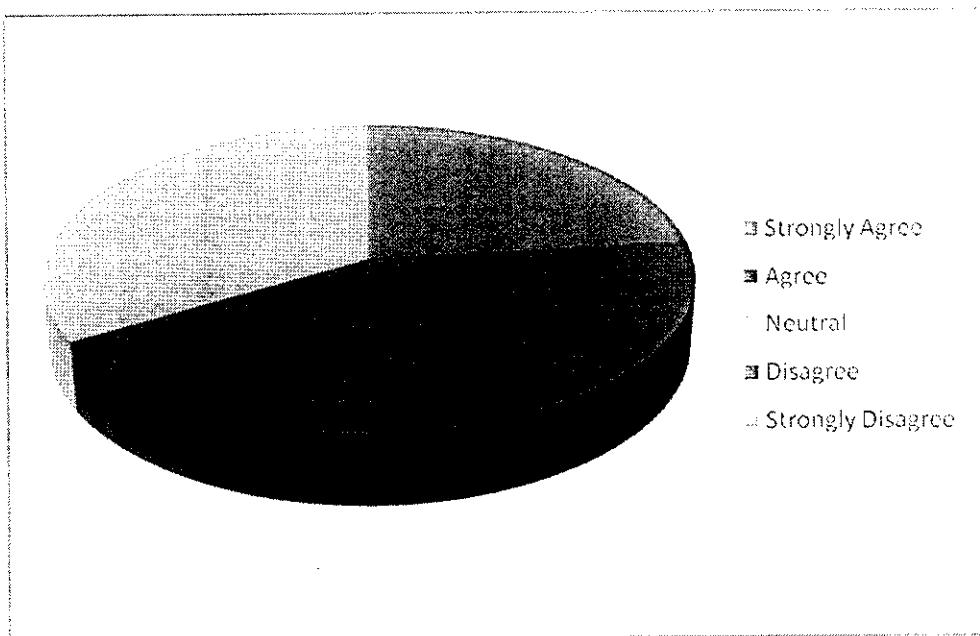

Fig 4.6 - Additional learning materials like wiki links, pdfs

Interpretation:

About one third of the respondents (33.33%) feel neutral about the additional learning resources. The rest 67.67% agrees that additional learning resources will makes students competitive. These figures suggest a strong need to focus on additional learning resources.

Head of the Institution

Table 7: The implementation of this software in our school will reduce the communication gap and enhance relationship between teachers and parents.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	4	13.79
Agree	15	51.72
Neutral	8	27.59
Disagree	2	6.90
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.7 - Reduce the communication gap and enhance relationship

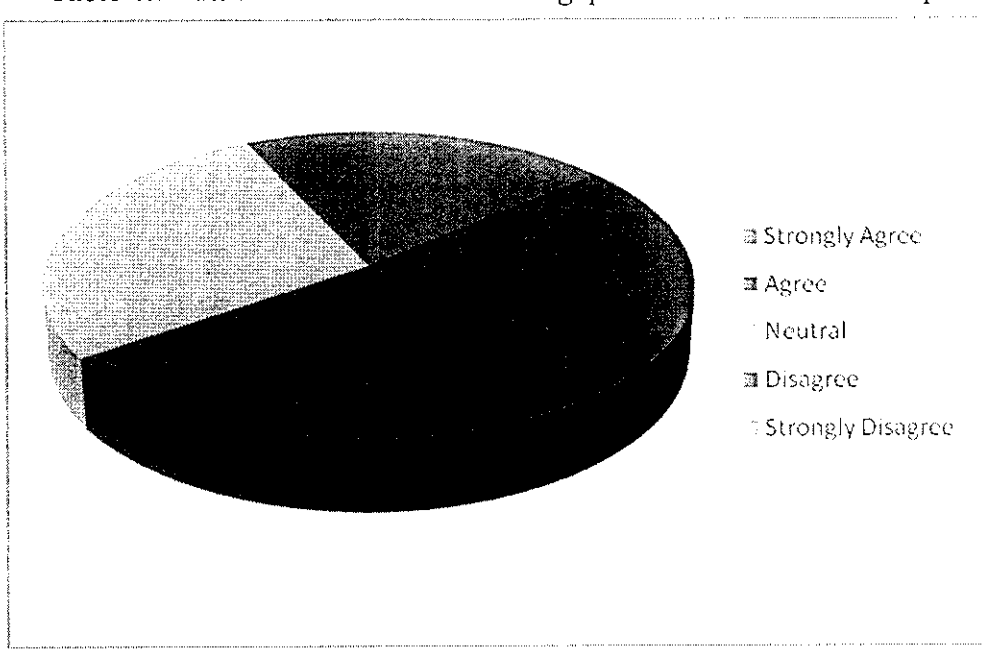

Fig 4.7 - Reduce the communication gap and enhance relationship

Interpretation:

Less than 10% of schools do not agree with the idea of software based communication with parents. They would rather prefer only a direct communication with parents. And another 27.5% of schools neither agree nor disagree with the idea of a software tool for communication. And about 65% agrees that use of software in communication process will help improve relationship and helps follow-up.

Head of the Institution

Table 8: It is affordable to develop necessary infrastructure for implementing Web Integrated Learning System in my school considering the benefits we reap out.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	0	0.00
Agree	7	23.33
Neutral	13	43.33
Disagree	8	26.67
Strongly Disagree	2	6.67
Total	**30**	**100.00**

Table 4.8 - Affordability to develop necessary infrastructure

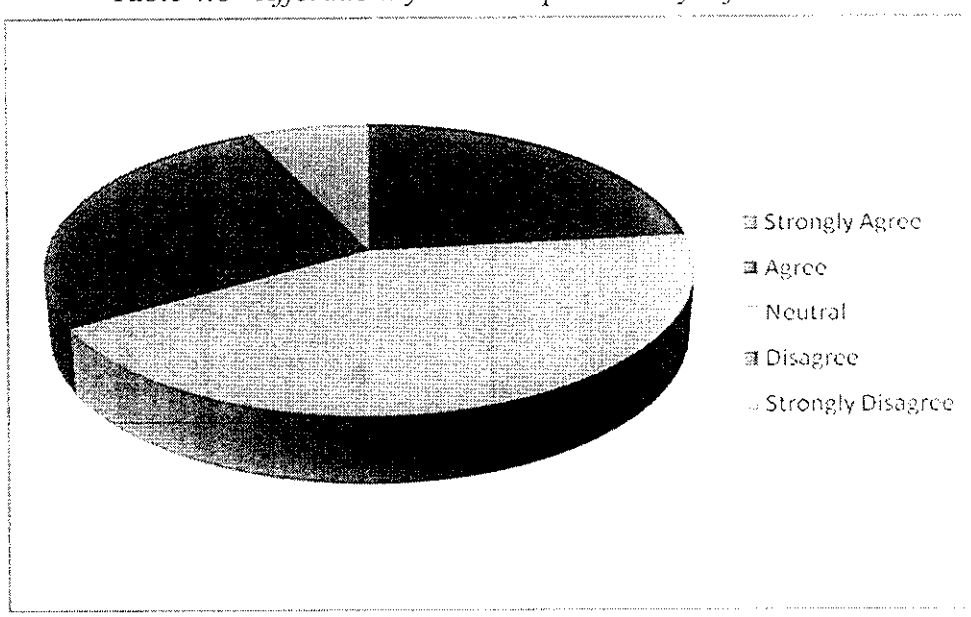

Fig 4.8 - Affordability to develop necessary infrastructure

Interpretation:

This seems to be one of the most important data relating to the overall success factor of the software. One third (33.33%) of schools disagree with the idea of investing fund for developing necessary infrastructure. And another 43.33% feel neutral about it. They may or may not come forward to invest. Only 23.33% agrees to develop necessary infrastructure. This data strongly suggest that the company must provide infrastructure services additionally to make the software project successful.

Head of the Institution

Table 9: It is acceptable to increase the fee of each student by Rs.1,000 p.a to make-up for the subscription charges for using the software.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	1	3.33
Agree	8	26.67
Neutral	16	53.33
Disagree	5	16.67
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.9 - Increase the fee of each student by Rs.1,000 p.a

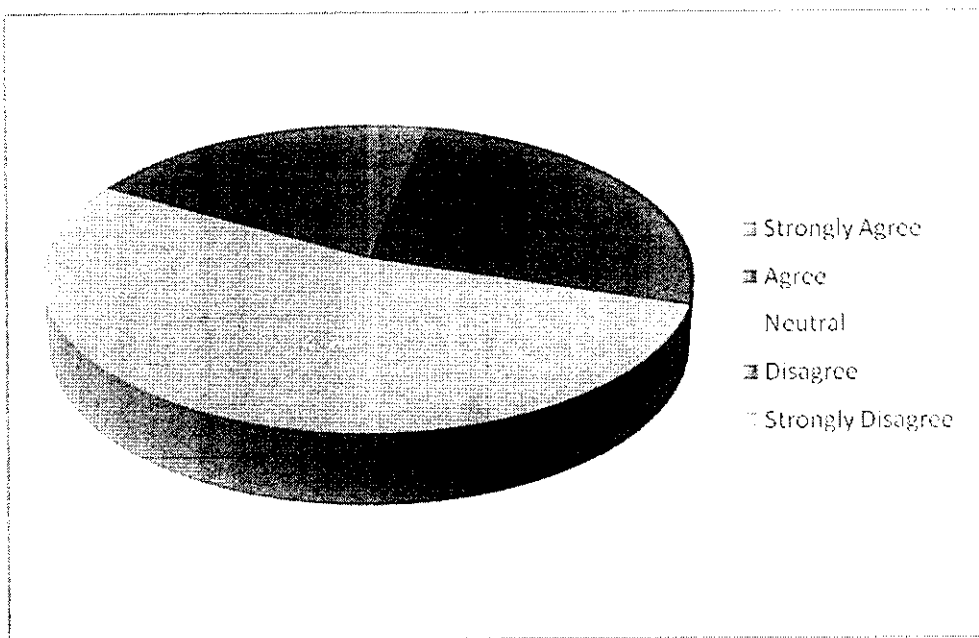

Fig 4.9 - - Increase the fee of each student by Rs.1,000 p.a

Interpretation:

About 30% of the schools agree to increase the fees of the students to meet the subscription charges. The 56% of respondents who feel neutral would rather prefer to increase by a lesser amount. And about 17% disagree to increase the student fee.

Head of the Institution

Table 10: We will be able to devote time and money to train all teaching faculty to use this software efficiently.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	2	6.67
Agree	8	26.67
Neutral	17	56.67
Disagree	3	10.00
Strongly Disagree	0	0.00
Total	**30**	**100.00**

Table 4.10 - Able to devote time and money to train all teaching faculty

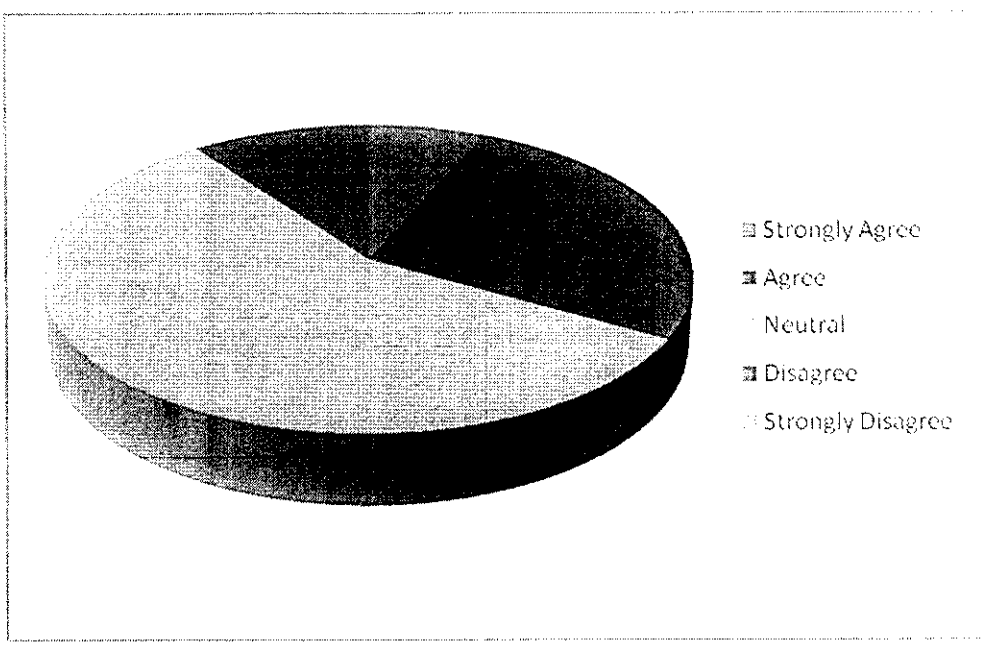

Fig 4.10 - Able to devote time and money to train all teaching faculty

Interpretation:

The staff member training is also an important factor for the success of the software system. Only 33.33% of respondent are very optimistic about making efforts to spend time and money for training. About 57% feels neutral and 10% disagrees.

Teachers Survey

Table 1: I feel the software will help me monitor and manage the performance of my class students effectively

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	8	13.33
Agree	23	38.33
Neutral	20	33.33
Disagree	6	10
Strongly Disagree	3	5
Total	**60**	**100**

Table 4.11 - Monitor and manage the performance of my class

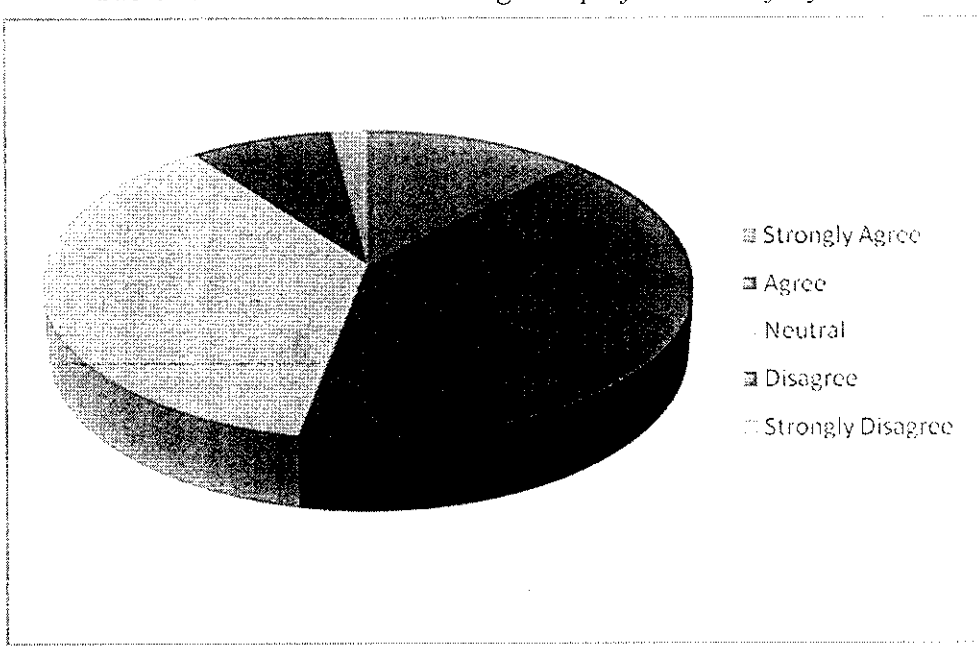

Fig 4.11 - Monitor and manage the performance of my class

Interpretation:

A little more than half the number of respondents agreed that the software will help in performance management. And about one that of respondents stands neutral. Only about 15% disagreed.

Teachers Survey

Table 2: Graphics and demonstrations will help us impart knowledge by making students understand things easily.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	24	40.00
Agree	32	53.33
Neutral	4	6.67
Disagree	0	0.00
Strongly Disagree	0	0.00
Total	**60**	**100**

Table 4.12 - Graphics and demonstrations will help impart knowledge

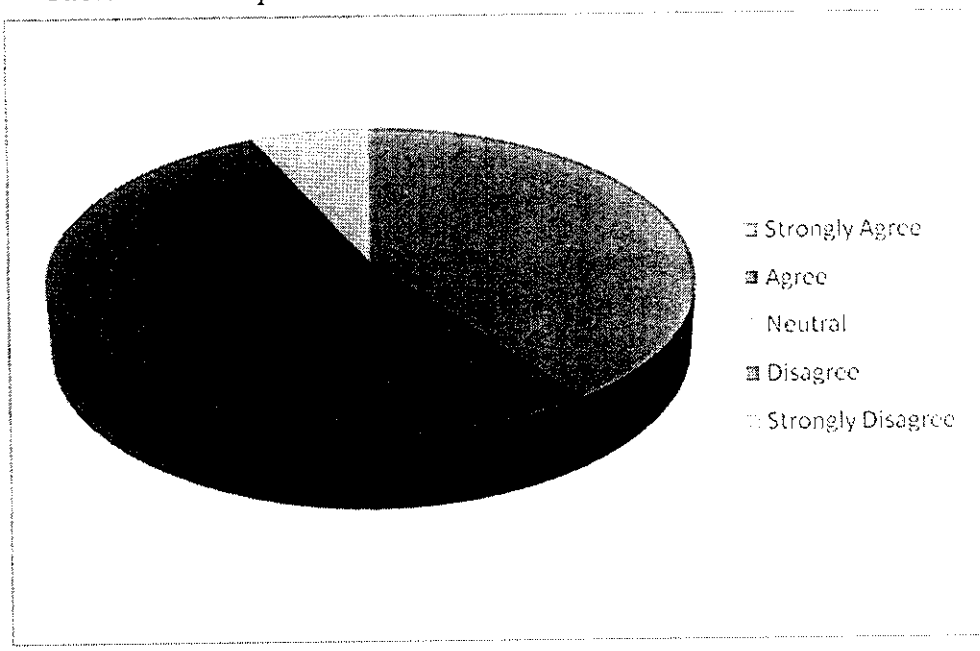

Fig 4.12 - Graphics and demonstrations will help impart knowledge

Interpretation:

As high as 40% of respondents strongly agreed that use of graphical tools will help impart knowledge in a better way. None of the respondents disagreed with this feature of the software. This signifies the importance of developing a quality graphical interface for teaching.

Teachers Survey

Table 3: One Click Progress Report is awesome feature – reducing manual work thereby saving time.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	26	43.33
Agree	32	53.33
Neutral	2	3.33
Disagree	0	0.00
Strongly Disagree	0	0.00
Total	**60**	**100**

Table 4.13 - One Click Progress Report is awesome feature

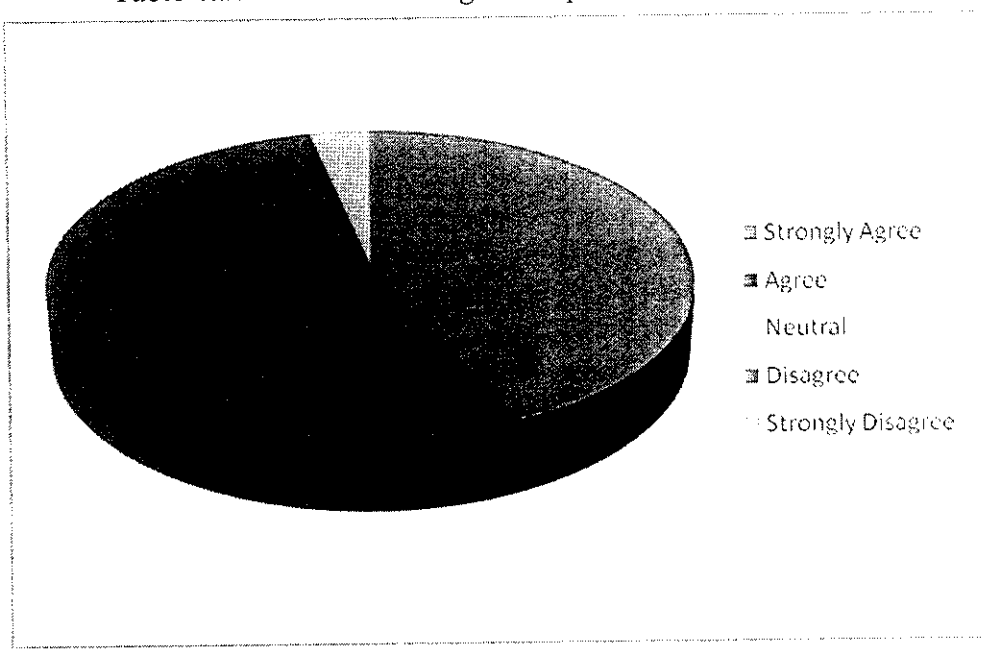

Fig 4.13 - One Click Progress Report is awesome feature

Interpretation:

The One Click Progress report has also gained the most positive response with 95% of respondents agreeing with that. Only a few felt neutral. The highly positive response is attributed to level of manual efforts that gets eliminated with this feature.

Teachers Survey

Table 4: It is easy to maintain the attendance records of the students using software.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	12	20.00
Agree	32	53.33
Neutral	12	20.00
Disagree	4	6.67
Strongly Disagree	0	0.00
Total	**60**	**100**

Table 4.14 - Attendance records of the students using software

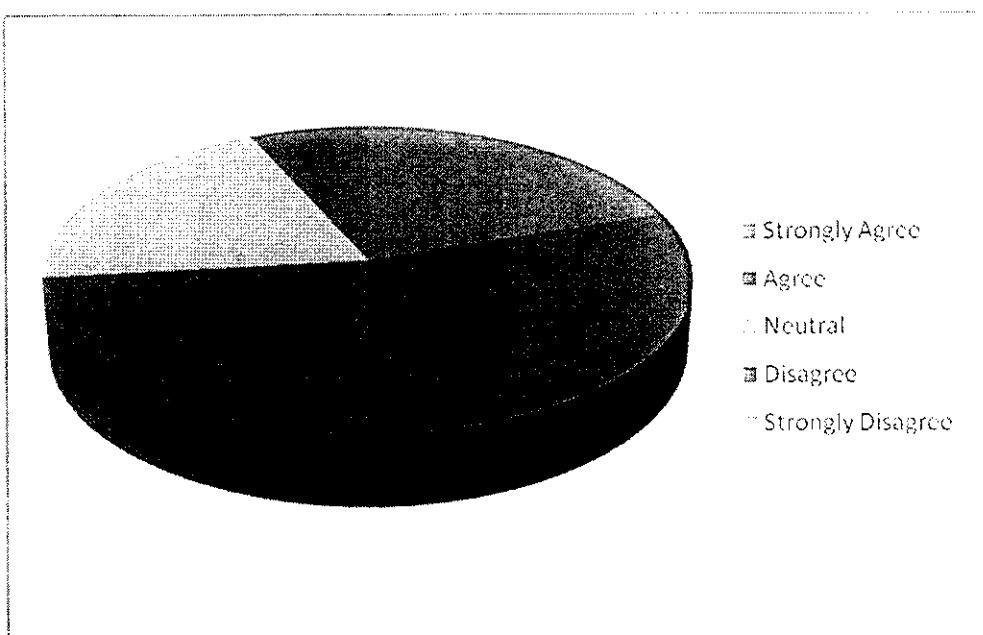

Fig 4.14 - Attendance records of the students using software

Interpretation:

This feature gained a good response with about 74% agreeing with the stated benefits. However 20% of respondents replied neutral who finds this feature not so attractive to be used in classroom. And also a few had negative opinion about this and have disagreed.

Teachers Survey

Table 5: Able to communicate with parents easily and can keep track of conversations.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	7	11.67
Agree	28	46.67
Neutral	16	26.67
Disagree	8	13.33
Strongly Disagree	1	1.67
Total	**60**	**100**

Table 4.15 - Able to communicate with parents easily

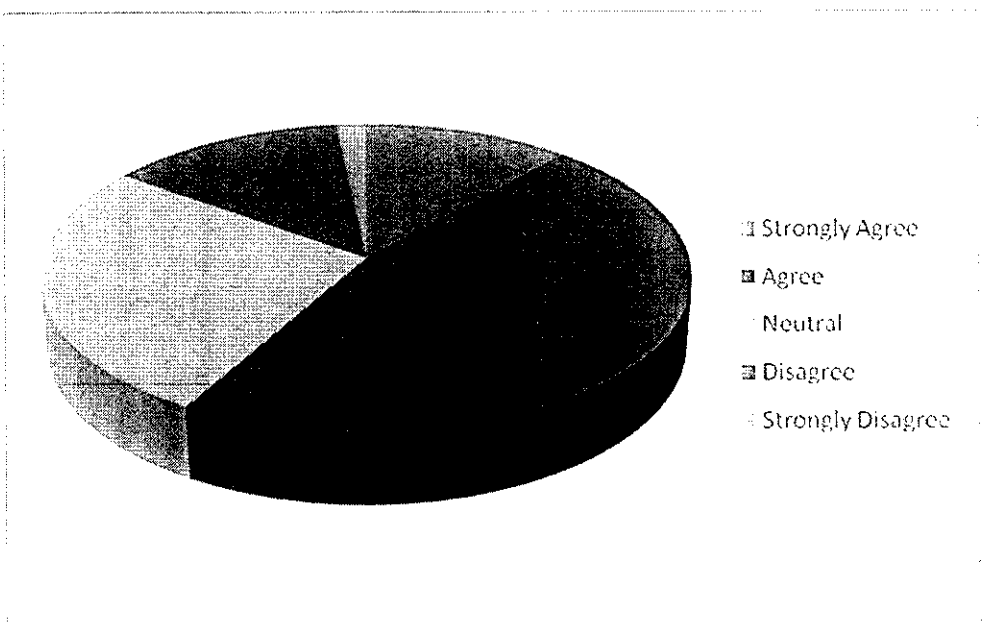

Fig 4.15 - Able to communicate with parents easily

Interpretation:

This feature of communication tools has gained a mixed response with 55% agreeing with that and about 25% felt neutral and the rest have disagreed.

Teachers Survey

Table 6: The Scheduler tool is powerful to plan and manage my activities for the day.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	8	13.33
Agree	30	50.00
Neutral	16	26.67
Disagree	6	10.00
Strongly Disagree	0	0.00
Total	**60**	**100**

Table 4.16 - Scheduler tool is powerful to plan and manage my activities

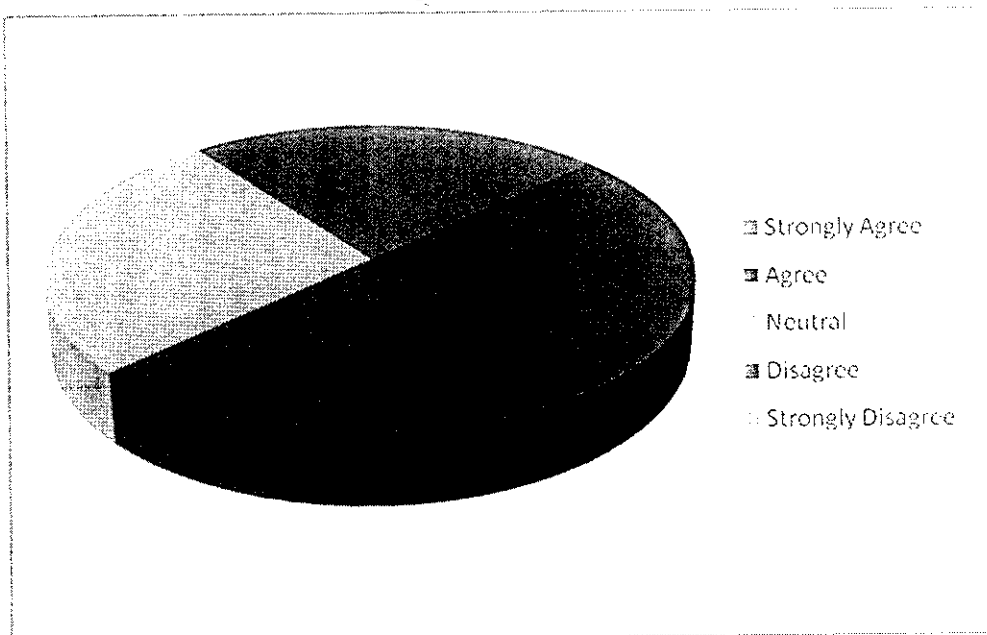

Fig 4.16 - Scheduler tool is powerful to plan and manage my activities

Interpretation:

A few teachers felt really nice to have a scheduler tools to plan and manage their activities efficiently. This feature has gained a 63% positive response with 38 teachers agreeing in it. Around 27% responded neutral, while 10% disagreed stating there is no specific need for a scheduler and also the efforts required to maintain it.

Teachers Survey

Table 7: The additional learning materials like wiki links, pdfs on various topics other than those prescribed in the syllabus will make our students competitive.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	9	15.00
Agree	14	23.33
Neutral	27	45.00
Disagree	8	13.33
Strongly Disagree	2	3.33
Total	**60**	**100**

Table 4.17 - Additional learning materials like wiki links, pdfs

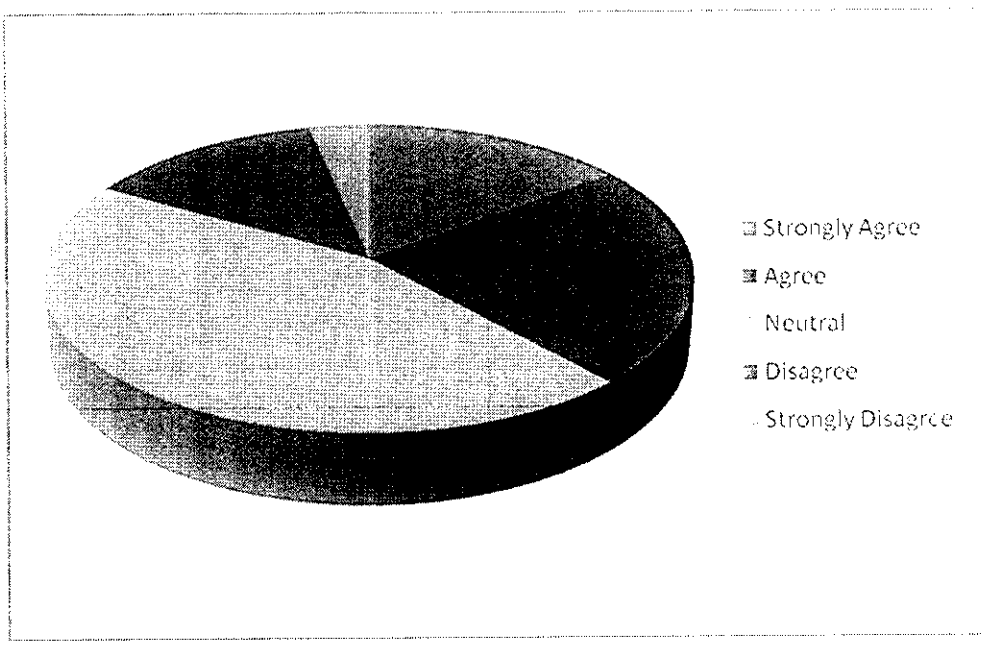

Fig 4. 17 - Additional learning materials like wiki links, pdfs

Interpretation:

The additional learning aids that come with the come has gained mixed response from teachers. About 38% agreed with the benefits of it and larger share of 45% responded neutral. Around 15% of teachers disagreed stressing the need for teaching rather than self-learning.

Teachers Survey

Table 8: Sharing of class notes and study materials is very using the software – It reaches my students within seconds.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	7	11.67
Agree	14	23.33
Neutral	29	48.33
Disagree	7	11.67
Strongly Disagree	3	5.00
Total	**60**	**100**

Table 4.18 - Sharing of class notes and study materials

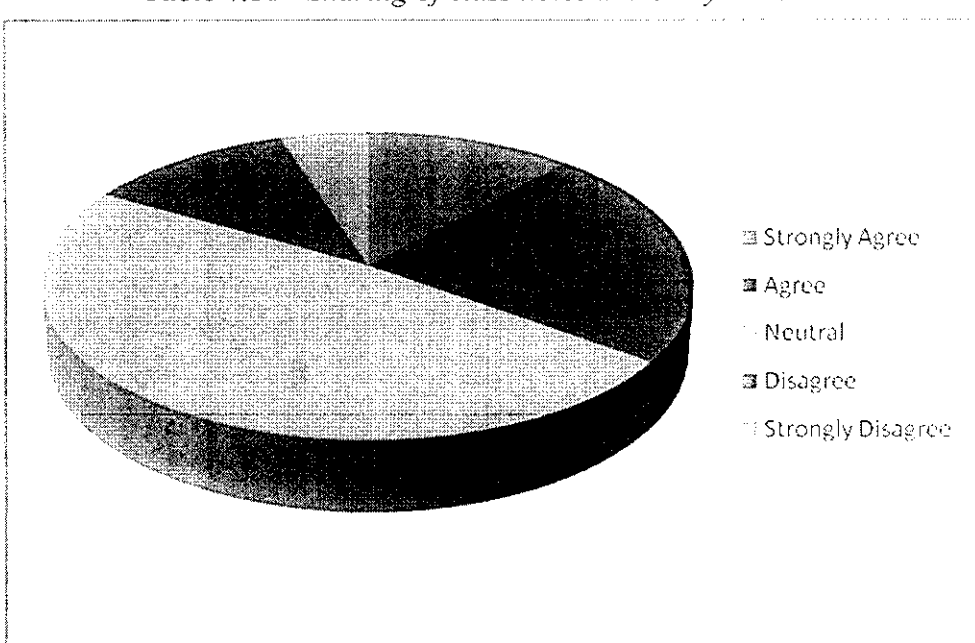

Fig 4.18 - Sharing of class notes and study materials

Interpretation:

Only about 35% of respondents have replied in favour of this feature. A close to half the number of respondents felt neutral and about 17% disagreed on this utility.

Teachers Survey

Table 9: The communicator tool helps me to keep the parents informed about the activities/improvements/concerns about the student.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	6	10.00
Agree	23	38.33
Neutral	20	33.33
Disagree	8	13.33
Strongly Disagree	3	5.00
Total	**60**	**100**

Table 4.19 - Communicator tool

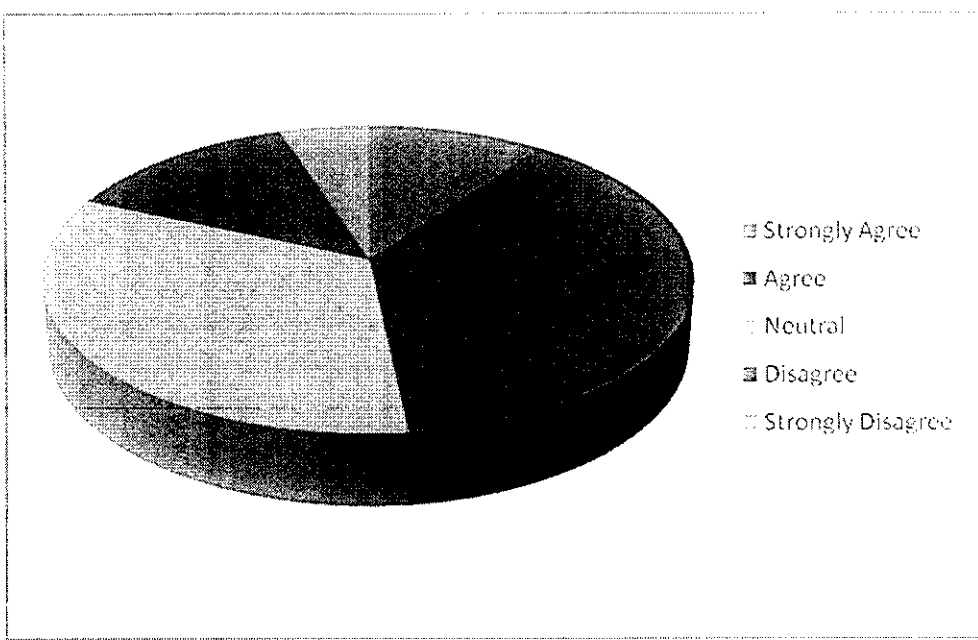

Fig 4.19 - Communicator tool

Interpretation:

About half the number of respondents felt positive about this feature. There were about 20% who disagreed stressing on the need for face to face communication with parents rather than through other means.

Teachers Survey

Table 10: Implementation of this software system will help us devote more time towards teaching related activities by reducing administrative activities to minimum.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	10	16.67
Agree	27	45.00
Neutral	18	30.00
Disagree	5	8.33
Strongly Disagree	0	0.00
Total	**60**	**100**

Table 4.20 - Help us devote more time towards teaching

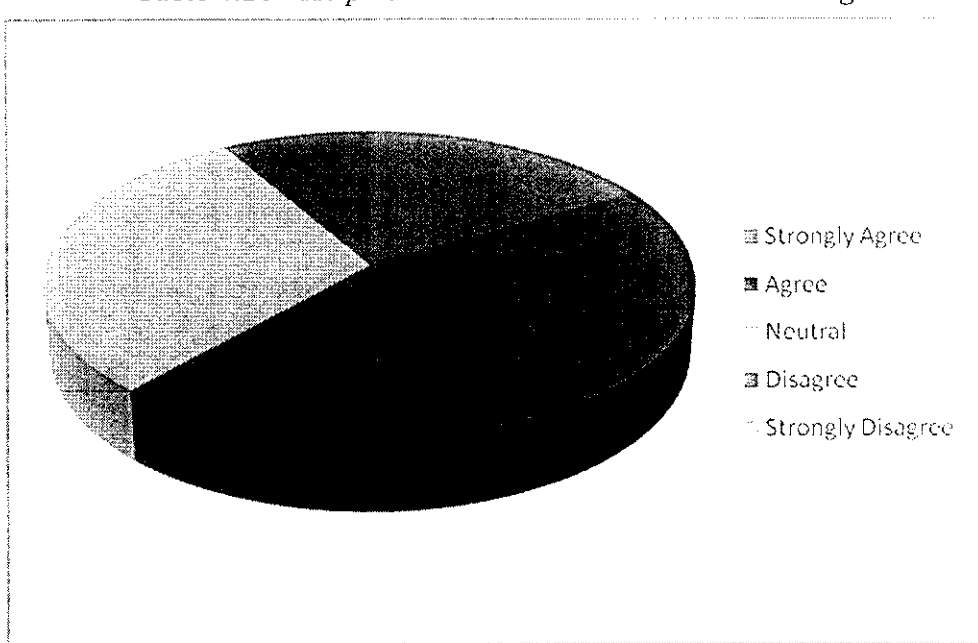

Fig 4.20 - Help us devote more time towards teaching

Interpretation:

A good number of respondents close to 62% responded favourable to the implementation of this software system. 30% responded neutral and only less than 10% disagreed for going for this software.

Parents Survey

Table 1: I feel more convenient to receive my kid's progress card delivered to my email inbox – very similar to bank statements or telephone bills.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	22	14.67
Agree	78	52.00
Neutral	37	24.67
Disagree	11	7.33
Strongly Disagree	2	1.33
Total	**150**	**100**

Table 4.21 - Convenient to receive my kid's progress card by email.

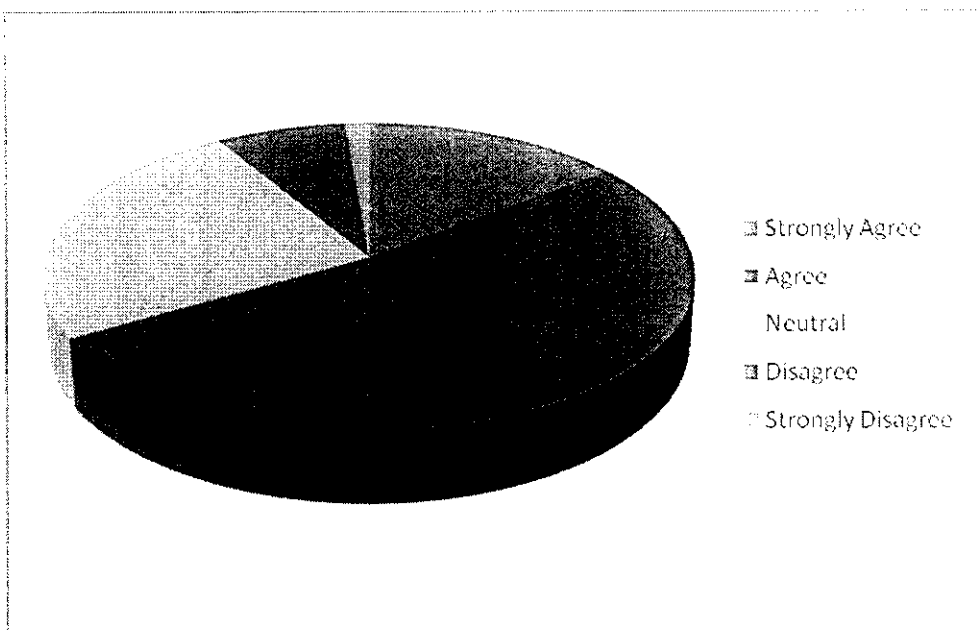

Fig 4.21 - Convenient to receive my kid's progress card by email.

Interpretation:

About 67% of parents responded positively for the idea of receiving the progress card by email. 25% remained neutral, while 8% disagreed.

Parents Survey

Table 2: I feel use of computers and softwares will enhance my kid's learning experience – compared to traditional book based system.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	12	8.00
Agree	71	47.33
Neutral	47	31.33
Disagree	15	10.00
Strongly Disagree	5	3.33
Total	**150**	**100**

Table 4.22 – Computers and softwares enhance my kid's learning experience

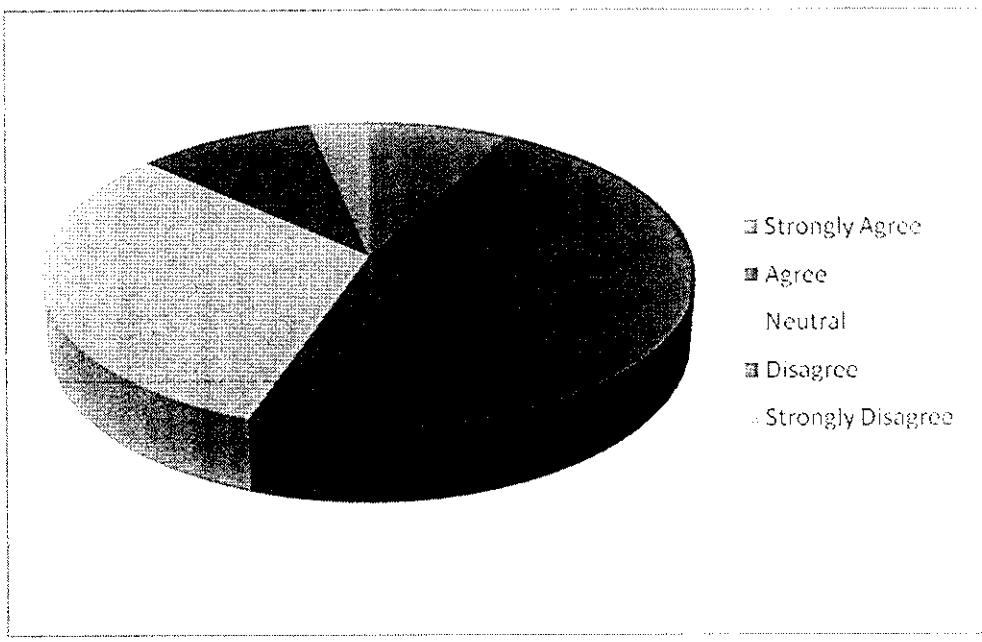

Fig 4.22 - Computers and softwares will enhance my kid's learning experience

Interpretation:

There seems to be a mixed response from parents when it comes to using computers and softwares for learning. About 55% agreed that it will enhance their kid's learning experience. About one third remained neutral and a few disagreed.

Parents Survey

Table 3: It is financially affordable for me to buy an Education Laptop (Rs.15,000/- approx) for my kid – or through a monthly EMI of Rs.1,500/- approx.

Response	No. of Respondents	Percentage of Respondent
Strongly Agree	19	12.67
Agree	69	46.00
Neutral	53	35.33
Disagree	9	6.00
Strongly Disagree	0	0.00
Total	**150**	**100**

Table 4.23 - Financially affordable for me to buy a Laptop for my kid

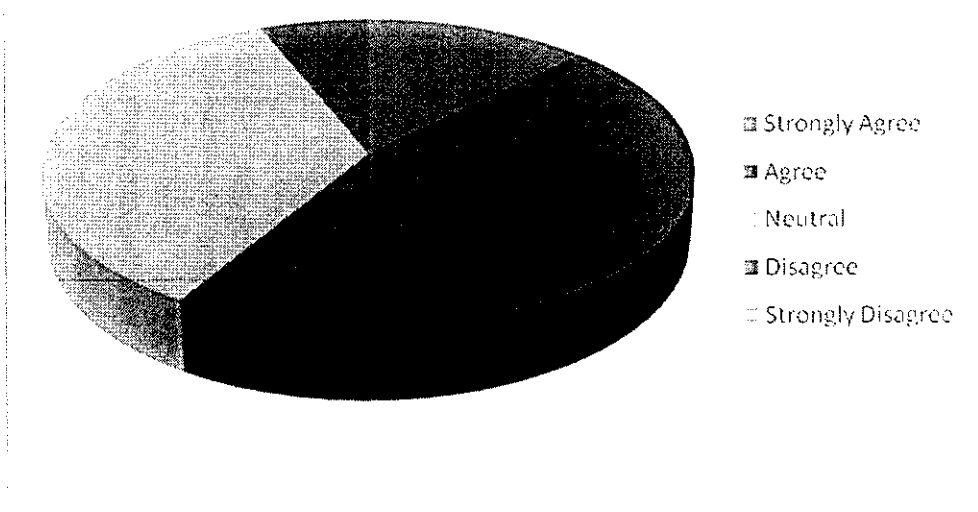

Fig 4.23 - Financially affordable for me to buy a Laptop for my kid

Interpretation:

A majority of parents felt that it is affordable for them to purchase a laptop for the child either by EMI or outright purchase. Only 6% of parents find it unaffordable.

Parents Survey

Table 4: It will be convenient for me to monitor my kid's performance through an online portal – particularly keep track of attendance, home works, exam schedules etc.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	28	18.67
Agree	67	44.67
Neutral	39	26.00
Disagree	12	8.00
Strongly Disagree	4	2.67
Total	**150**	**100**

Table 4.24 - Monitor my kid's performance through an online portal

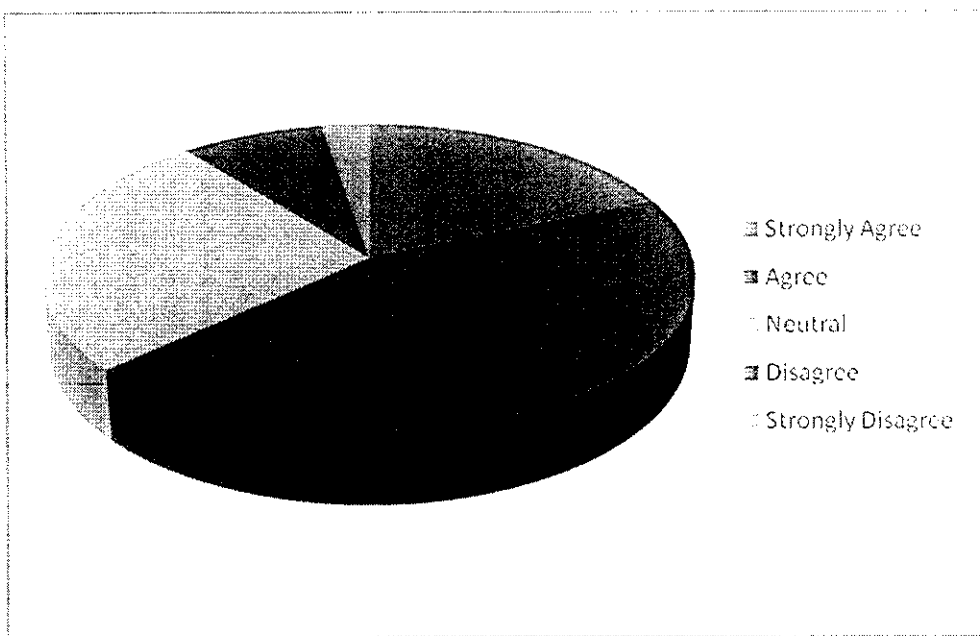

Fig 4.24 - Monitor my kid's performance through an online portal

Interpretation:

About 64% of parents felt it will be useful to have an online portal where they can track and analyze their children's performance. About one fourth were neutral about this feature. And the 10% disagreed with this idea and they prefer our traditional methods.

Parents Survey

Table 5: This software will help me monitor homework and guide my children.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	7	4.67
Agree	66	44.00
Neutral	54	36.00
Disagree	15	10.00
Strongly Disagree	8	5.33
Total	**150**	**100**

Table 4.25 - Software will help me monitor homework and guide

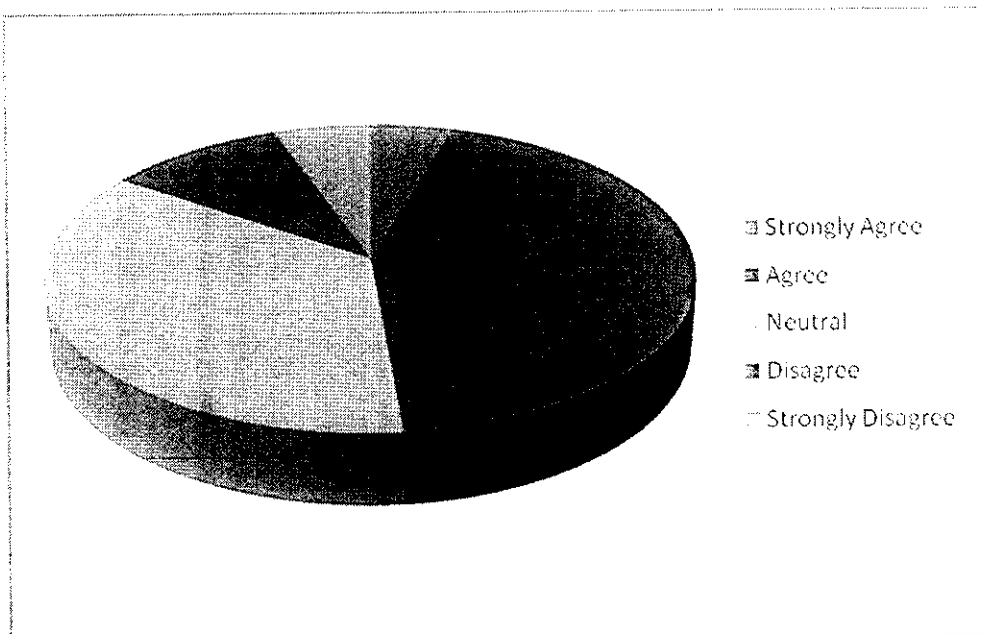

Fig 4.25 - Software will help me monitor homework and guide

Interpretation:

About a half the number of respondent finds it good to have a utility to monitor and guide their kid on their homeworks. And another 36% remained neutral, while about 15% disagreed who would rather prefer not to monitor the homeworks and stuff like that.

Parents Survey

Table 6: The advance scheduling of meetings with school authorities will help devote my time as planned.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	13	8.67
Agree	78	52.00
Neutral	54	36.00
Disagree	4	2.67
Strongly Disagree	1	0.67
Total	**150**	**100**

Table 4.26 - Advance scheduling of meetings with school authorities

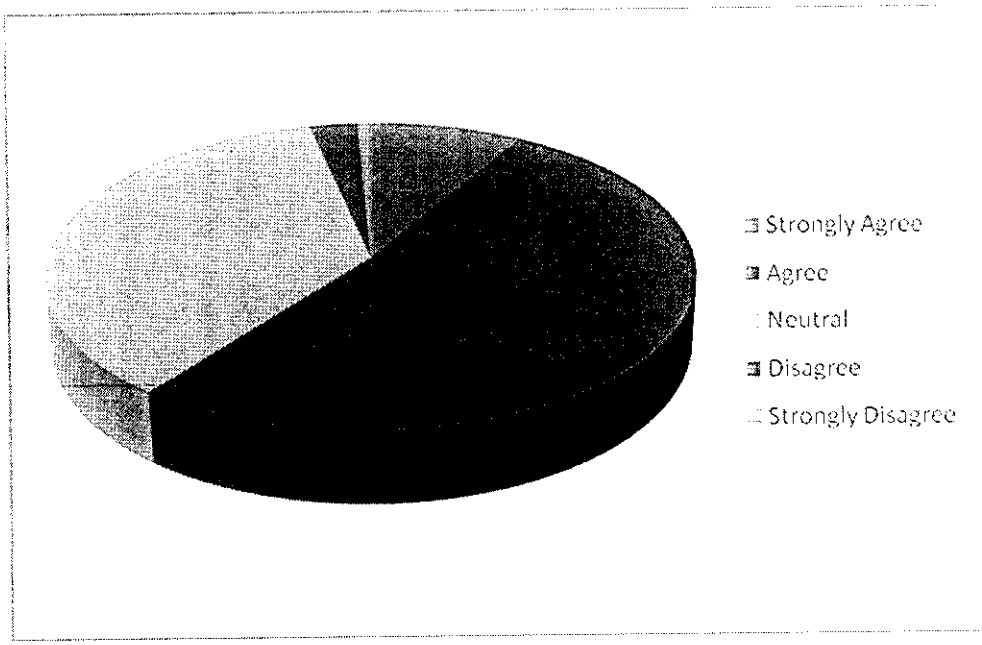

Fig 4.26 - Advance scheduling of meetings with school authorities

Interpretation:

About 60% of respondents agreed to have a scheduling tool to fix appointments with the school authorities. 36% of parents have responded neutrally for this feature and only 3% disagreed.

Parents Survey

Table 7: The software based learning system will give fun-filled learning experience to my child.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	17	11.33
Agree	73	48.67
Neutral	41	27.33
Disagree	13	8.67
Strongly Disagree	6	4.00
Total	**150**	**100**

Table 4.27 - Gives fun-filled learning experience

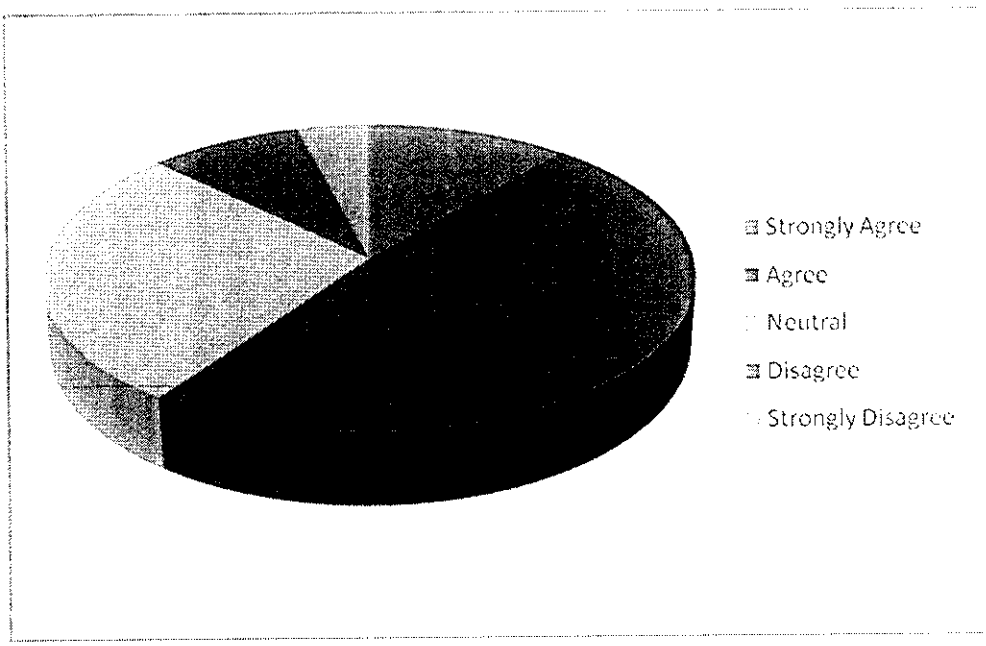

Fig 4.27 - Gives fun-filled learning experience

Interpretation:

On the perspective about computer based learning, about 60% of believe that it will be a fun filled experience for their children. And 13% feels it may not be a fun-filled one to learn from a computer software. 27% remained neutral.

Parents Survey

Table 8: The additional contents available will be useful for my kid to acquire knowledge on vast areas and gain a competitive advantage

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	13	8.67
Agree	65	43.33
Neutral	60	40.00
Disagree	8	5.33
Strongly Disagree	4	2.67
Total	**150**	**100**

Table 4.28 - Additional contents available will be useful

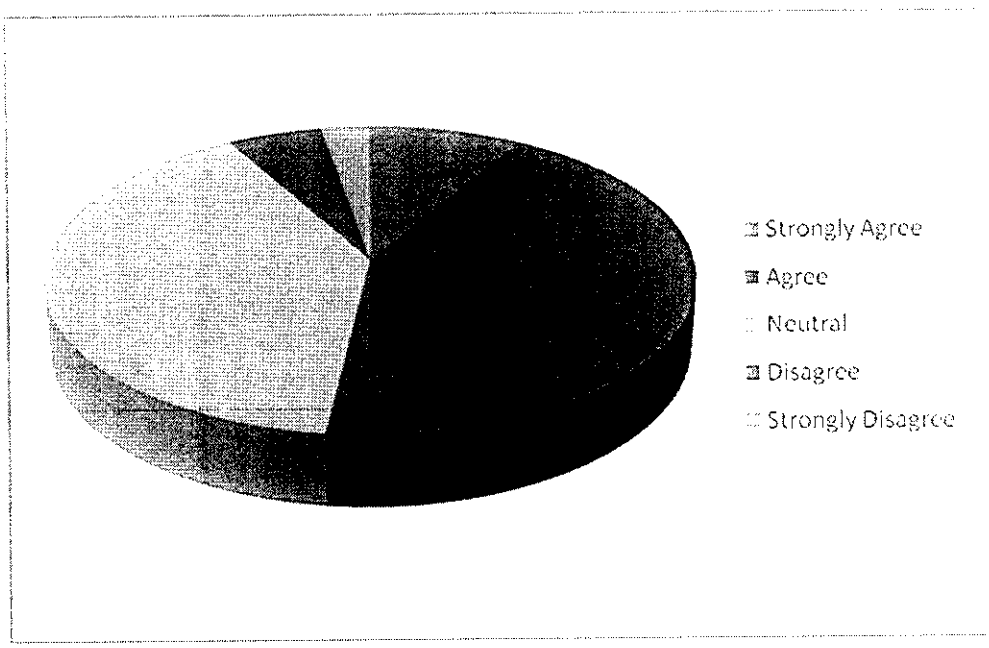

Fig 4.28 - Additional contents available will be useful

Interpretation:

A little over the majority of parents felt the additional learning materials will be very useful and make their children more knowledgeable. About 40% remained neutral on this feature. And 8% of respondents disagreed who felt children would miss other activities when more stress it laid on learning alone.

Parents Survey

Table 9: I want schools to implement this software system to bring in more transparency and efficiency into our educational system

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	24	16.00
Agree	63	42.00
Neutral	51	34.00
Disagree	8	5.33
Strongly Disagree	4	2.67
Total	**150**	**100**

Table 4.29 - I want schools to implement this software system

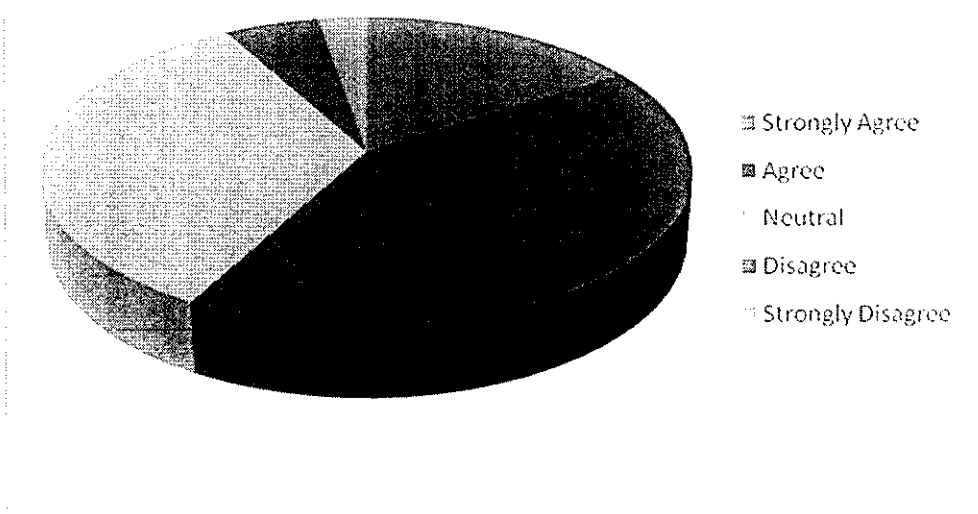

Fig 4.29 - I want schools to implement this software system

Interpretation:

About 58% of parents want to have this software system implemented in schools. About 34% opted to b e neutral stating it is ok to have or not to have such a system. And about 8% do not want to have such a system.

Parents Survey

Table 10: The web integrated system will help us track the activities at school and keep updated on those days when my child could not attend the class.

Response	No. of Respondents	Percentage of Respondents
Strongly Agree	8	5.33
Agree	83	55.33
Neutral	41	27.33
Disagree	13	8.67
Strongly Disagree	5	3.33
Total	**150**	**100**

Table 4.30 - Track the activities at school and keep updated

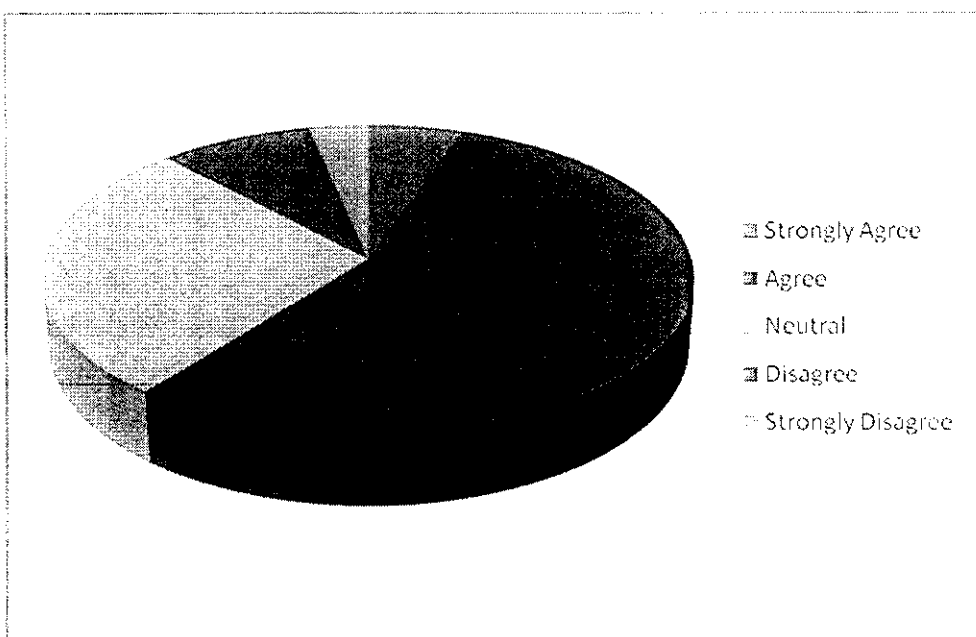

Fig 4.30 - Track the activities at school and keep updated

Interpretation:

This feature is of interest to 61% of parents. And about 28% of parents are not so keen on this feature. The remaining 12% disagreed with this idea.

4.4 CHI-SQUARE ANALYSIS

4.4.1.a Use of Software & graphical tools for teaching: Principal Vs Teachers

Null Hypothesis:

There is no significant difference in the response provided by the principals and teachers on the use of software & graphical tools for teaching.

Alternate Hypothesis:

There is a significant difference between the response of principals and teachers on the use of software & graphical tools for teaching.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal	8	14	8	0	0	**30**
Teachers	24	32	4	0	0	**60**
Total	**32**	**46**	**12**	**0**	**0**	**90**

Table 4.31 - Observed Values

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal	10.67	15.33	4.00	0.00	0.00	**30**
Teacher	21.33	30.67	8.00	0.00	0.00	**60**
Total	**32**	**46**	**12**	**0**	**0**	**90**

Table 4.32- Expected Values

O	E	(O - E)	$(O - E)^2$	$(O - E)^2/E$
8	10.67	-2.67	7.11	0.67
14	15.33	-1.33	1.78	0.12
8	4.00	4.00	16.00	4.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
24	21.33	2.67	7.11	0.33
32	30.67	1.33	1.78	0.06
4	8.00	-4.00	16.00	2.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
				7.17

Table 4.33 - Chi-Square Calculation

Chi-Square Values:

Calculated = 7.17

Table = 9.488 for degrees of freedom = 4 at 5% level of significance.

Here the calculated value of chi-square is less than the table value and hence the null hypothesis is accepted and alternate hypothesis is rejected.

Inference:

The results of the chi-square test ascertain that the response from the principals and teachers on use of graphical tools for teaching remains similar with both opting for a positive view on this feature.

4.4.1.b Use of Software & graphical tools for teaching: Principal Vs Parents

Null Hypothesis:

There is no significant difference in the response provided by the principals and parents on the use of software & graphical tools for teaching.

Alternate Hypothesis:

There is a significant difference between the response of principals and parents on the use of software & graphical tools for teaching.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal	8	14	8	0	0	**30**
Parents	12	71	47	15	5	**150**
Total	**20**	**85**	**55**	**15**	**5**	**180**

Table 4.34 - Observed Values

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal	3.33	14.17	9.17	2.50	0.83	**30**
Parents	16.67	70.83	45.83	12.50	4.17	**150**
Total	**20**	**85**	**55**	**15**	**5**	**180**

Table 4.35 - Expected Values

O	E	(O - E)	$(O - E)^2$	$(O - E)^2/E$
8	3.33	4.67	21.78	6.53
14	14.17	-0.17	0.03	0.00
8	9.17	-1.17	1.36	0.15
0	2.50	-2.50	6.25	2.50
0	0.83	-0.83	0.69	0.83
12	16.67	-4.67	21.78	1.31
71	70.83	0.17	0.03	0.00
47	45.83	1.17	1.36	0.03
15	12.50	2.50	6.25	0.50
5	4.17	0.83	0.69	0.17
				12.02

Table 4.36 - Chi-Square Calculation

Chi-Square Values:

Calculated = 12.02

Table = 9.488 for degrees of freedom = 4 at 5% level of significance.

Here the calculated value of chi-square is greater than the table value and hence the null hypothesis is rejected and alternate hypothesis is accepted.

Inference:

The results of the chi-square test establish that there is a significant difference in response from the principals and parents on use of graphical tools for teaching with principal leaning on the positive side.

4.4.1.c Use of Software & graphical tools for teaching: Parents Vs Teachers

Null Hypothesis:

There is no significant difference in the response provided by the parents and teachers on the use of software & graphical tools for teaching.

Alternate Hypothesis:

There is a significant difference between the response of parents and teachers on the use of software & graphical tools for teaching.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Parents	12	71	47	15	5	**150**
Teachers	24	32	4	0	0	**60**
Total	**36**	**103**	**51**	**15**	**5**	**210**

Table 4.37 - Observed Values

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Parents	25.71	73.57	36.43	10.71	3.57	**150**
Teacher	10.29	29.43	14.57	4.29	1.43	**60**
Total	**36**	**103**	**51**	**15**	**5**	**210**

Table 4.38 - Expected Values

O	E	(O - E)	$(O - E)^2$	$(O - E)^2/E$
12	25.71	-13.71	188.08	7.31
71	73.57	-2.57	6.61	0.09
47	36.43	10.57	111.76	3.07
15	10.71	4.29	18.37	1.71
5	3.57	1.43	2.04	0.57
24	10.29	13.71	188.08	18.29
32	29.43	2.57	6.61	0.22
4	14.57	-10.57	111.76	7.67
0	4.29	-4.29	18.37	4.29
0	1.43	-1.43	2.04	1.43
				44.65

Table 4.39- Chi-Square Calculation

Chi-Square Values:

Calculated = 44.65

Table = 9.488 for degrees of freedom = 4 at 5% level of significance.

Here the calculated value of chi-square is greater than the table value and hence the null hypothesis is rejected and alternate hypothesis is accepted.

Inference:

The results of the chi-square test indicates a vast significant difference in response from the teachers and parents on use of graphical tools for teaching with teachers leaning on the positive side.

4.4.2.a Providing Additional Learning Aids: Principal Vs. Teachers

Null Hypothesis:

There is no significant difference in the response provided by the principals and teachers on providing additional learning aids.

Alternate Hypothesis:

There is a significant difference between the response of principals and teachers on providing additional learning aids.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal	7	13	10	0	0	**30**
Teachers	9	14	27	8	2	**60**
Total	**16**	**27**	**37**	**8**	**2**	**90**

Table 4.40 - Observed Values

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal	5.33	9.00	12.33	2.67	0.67	**30**
Teacher	10.67	18.00	24.67	5.33	1.33	**60**
Total	**16**	**27**	**37**	**8**	**2**	**90**

Table 4.41 - Expected Values

O	E	(O - E)	$(O - E)^2$	$(O - E)^2/E$
7	5.33	1.67	2.78	0.52
13	9.00	4.00	16.00	1.78
10	12.33	-2.33	5.44	0.44
0	2.67	-2.67	7.11	2.67
0	0.67	-0.67	0.44	0.67
9	10.67	-1.67	2.78	0.26
14	18.00	-4.00	16.00	0.89
27	24.67	2.33	5.44	0.22
8	5.33	2.67	7.11	1.33
2	1.33	0.67	0.44	0.33
				9.11

Table 4.42 - Chi-Square Calculation

Chi-Square Values:

Calculated = 9.11

Table = 9.488 for degrees of freedom = 4 at 5% level of significance.

Here the calculated value of chi-square is less than the table value and hence the null hypothesis is accepted and alternate hypothesis is rejected.

Inference:

The results of the chi-square test show that there is no significant difference in response from the principals and teachers on providing additional learning content for the children.

4.4.2.b Providing Additional Learning Aids: Principal Vs. Parents

Null Hypothesis:

There is no significant difference in the response provided by the principals and parents on providing additional learning aids.

Alternate Hypothesis:

There is a significant difference between the response of principals and parents on providing additional learning aids.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal	7	13	10	0	0	**30**
Parents	13	65	60	8	4	**150**
Total	**20**	**78**	**70**	**8**	**4**	**180**

Table 4.43 - Observed Values

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal	3.33	13.00	11.67	1.33	0.67	**30**
Parents	16.67	65.00	58.33	6.67	3.33	**150**
Total	**20**	**78**	**70**	**8**	**4**	**180**

Table 4.44 - Expected Values

O	E	(O - E)	$(O - E)^2$	$(O - E)^2/E$
7	3.33	3.67	13.44	4.03
13	13.00	0.00	0.00	0.00
10	11.67	-1.67	2.78	0.24
0	1.33	-1.33	1.78	1.33
0	0.67	-0.67	0.44	0.67
13	16.67	-3.67	13.44	0.81
65	65.00	0.00	0.00	0.00
60	58.33	1.67	2.78	0.05
8	6.67	1.33	1.78	0.27
4	3.33	0.67	0.44	0.13
				7.53

Table 4.45 - Chi-Square Calculation

Chi-Square Values:

Calculated = 7.53

Table = 9.488 for degrees of freedom = 4 at 5% level of significance.

Here the calculated value of chi-square is less than the table value and hence the null hypothesis is accepted and alternate hypothesis is rejected.

Inference:

The results of the chi-square test establish that there is no significant difference in response from the principals and parents on use of graphical tools for teaching with both providing a similar response on this feature.

4.4.2.a Providing Additional Learning Aids: Parents Vs. Teachers

Null Hypothesis:

There is no significant difference in the response provided by the parents and teachers on providing additional learning aids.

Alternate Hypothesis:

There is a significant difference between the response of parents and teachers on providing additional learning aids.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Parents	13	65	60	8	4	**150**
Teachers	9	14	27	8	2	**60**
Total	**22**	**79**	**87**	**16**	**6**	**210**

Table 4.46 - Observed Values

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Parents	15.71	56.43	62.14	11.43	4.29	**150**
Teacher	6.29	22.57	24.86	4.57	1.71	60
Total	**22**	**79**	**87**	**16**	**6**	**210**

Table 4.47 - Expected Values

O	E	(O - E)	$(O - E)^2$	$(O - E)^2/E$
13	15.71	-2.71	7.37	0.47
65	56.43	8.57	73.47	1.30
60	62.14	-2.14	4.59	0.07
8	11.43	-3.43	11.76	1.03
4	4.29	-0.29	0.08	0.02
9	6.29	2.71	7.37	1.17
14	22.57	-8.57	73.47	3.25
27	24.86	2.14	4.59	0.18
8	4.57	3.43	11.76	2.57
2	1.71	0.29	0.08	0.05
				10.12

Table 4.48- Chi-Square Calculation

Chi-Square Values:

Calculated = 10.12

Table = 9.488 for degrees of freedom = 4 at 5% level of significance.

Here the calculated value of chi-square is greater than the table value and hence the null hypothesis is rejected and alternate hypothesis is accepted.

Inference:

The results of the chi-square test indicate that there is a significant difference in response from the parents and teachers on additional learning content provided with this software.

4.5 CORRELATION ANALYSIS

4.5.1 For One Click Progress report and delivery by email to parents

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Parents (X) :	22	78	37	11	2	**150**
Teachers (Y) :	26	32	2	0	0	**60**

Table 4.49 - Observed Values

X	Y	XY	X^2	Y^2
22	26	572	484	676
78	32	2496	6084	1024
37	2	74	1369	4
11	0	0	121	0
2	0	0	4	0
150	**60**	**3142**	**8062**	**1704**

Table 4.50 - Correlation Calculation

Correlation coefficient r = 0.71682

Inference:

The value of correlation coefficient r = 0.72 indicates a high positive correlation between these two attributes. This indicates both teachers and parents are highly in favour of this feature to generate and deliver progress cards by software.

4.5.2 Scheduler tool for teachers

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Principal (X) :	4	15	10	1	0	**30**
Teacher (Y) :	8	30	16	6	0	**60**

Table 4.51 - Observed Values

X	Y	XY	X^2	Y^2
4	8	32	16	64
15	30	450	225	900
10	16	160	100	256
1	6	6	1	36
0	0	0	0	0
30	**60**	**648**	**342**	**1256**

Table 4.52 - Correlation Calculation

Correlation coefficient r = 0.97736

Inference:

The correlation coefficient of 0.97736 indicates a very high correlation between these two attributes. The majority of respondents find it good to have a scheduler tool.

4.6 MODE

Parents Survey:

It will be convenient for me to monitor my kid's performance through an online portal – particularly keep track of attendance, home works, exam schedules etc.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mode
1	2	3	4	5	**2**
28	67	39	12	1	**Agree**

Table 4.53 – Mode Parent survey

Teachers Survey:

I feel the software will help me monitor and manage the performance of my class students effectively

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mode
1	2	3	4	5	**2**
6	20	18	4	1	**Agree**

Table 4.54– Mode Teachers survey

Head of the Institution:

It will be very useful to monitor and track the activities of every student right from my desk using the software.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mode
1	2	3	4	5	**2**
7	17	6	0	0	**Agree**

Table 4.55 – Mode Principal survey

Inference:

The modal value of 2 corresponding to the response 'Agree' across all three category of respondent indicate the significance and need for a software based performance management tool. This needs to be developed as one of the key features of the proposed software.

Finding, Discussion, Recommendations & Conclusion

CHAPTER 5

FINDINGS, DISCUSSIONS, RECOMMENDATIONS & CONCLUSION

5.1 SUMMARY

In this final chapter, the researcher reports the findings. In order to do so, each of the research questions posed in chapter one are re-stated and efforts are made answer them, based on the conducted research. The researcher will also give some overall conclusions before presenting implication for management and theory, followed by further research. The main objective of this project is to study, analyze and understand the possibility of acceptance and expectations for a Web Integrated Computer based Learning System for Schools exclusively meet the demands of Indian society and education system. In this respect the potential targets and the people who would be impacted by this software system are identified. And based on this the survey was conducted with three category of respondents viz. head of the institutions, teachers and parents. The findings and recommendations made from the analysis of primary date had been summarized below.

5.2 FINDINGS

- The collected data indicates favourable results for the development of the software with majority of the respondents falling on the positive side.
- The collected data indicates favorable results for the development of the software with majority of the respondents falling on the positive side.
- 70% of school principals agree that use of advanced technology would improve the overall efficiency of their school and they look forward for a suitable solution.

- Majority of all categories of respondents agree that use of graphical tools like animations, videos and demonstration will the content delivery and create better understanding for students. This seems to be one of the key features to be implemented in the software.
- 65% of head of the institutions agreed that this software will improve the productivity of their teaching faculty by reducing manual administrative functions greatly.
- Only 23% of schools agreed that it is affordable to develop the necessary infrastructure, and about 50% responded neutral looking for a cheaper solution for building up the infrastructure.
- 30% of schools agreed and about 50% responded neutral to increase the fees by Rs.1,000/- p.a to meet up the subscription charges.
- The schools find it acceptable to spend time and effort to train their faculty to use this software.
- The graphical teaching tool and One Click Progress report generation seems to be the most expected feature out of this software for teacher. Over 90% of teachers agreed it would be very helpful to have this tool.
- There was also a relatively good response for maintaining online attendance records with 70% teachers opting for it.
- Teachers are also interested to make use of the communicator tool for effective communication with the parents.
- There was a mixed response from teachers for the idea of providing additional learning materials.
- A majority of 60% of teachers was in favour of implementing this software in their schools to get rid of administrative functions and devote more time in teaching related activities.

- 65% of parents surveyed are keen on getting their kids progress card delivered to their email.
- A majority 60% of parents feels it is financially affordable to purchase a laptop costing about Rs.15000/- for their kids and 35% remains neutral.
- Parents are also interested to have an online portal to keep track of attendance, home works, exam schedules etc
- A 58% percentage of parents wish to have this software implemented in schools.
- The results from the chi-square analysis proved that there is no significant difference in the views of teachers and principals in the use of graphical aids for teaching. Both of them are highly in favour of it. However the responses from the parents slightly vary and they are not so inclined towards graphical methods.
- The chi-square test on response provided for additional learning aids proved that there is no significant difference between principals and teachers and also between principal and parents.
- The correlation analysis established a positive correlation between the view of parents and teachers on the One Click Progress report feature.
- The correlation analysis also proved the existence of a very high positive correlation between the collected responses from principals and teachers on the Scheduler tools.
- The mode calculations made on the responses collected from parents, teachers and principal on a software based performance management tool indicate that the majority of respondents have agreed.

5.3 DISCUSSION

Many novel ideas and suggestion have come-up from different people during the course of research. These things will make the proposed software systems a value added entity for schools, teachers and parents. Some of the key points are presented below:

- Schools wanted to integrate a SMS (Short Messaging Service) to cell phones to be integrated with this software to enable easy and immediate communication to the parents
- Teacher and parents do not want to go away with the text books. Rather they would prefer to have printed text books in addition to the software content to ease reading
- There has been suggestion to include some kind of fun-filled content like puzzles, intellectual games etc based to the age group of the children to improve their IQ and analytical skills.

5.4 RECOMMENDATIONS

Based on the findings and analysis made on the primary data collected, the following recommendations are made:

- The premium category of schools are really interested to have a good software solution to aid them in their academic and administrative functions, hence it will be profitable to invest in the proposed model of a Web Integrated Computer Based Learning System for Schools.
- However most of the schools do not have necessary infrastructure for an easy adaption to such a software system. So it is necessary to provide necessary infrastructure services at a lower cost along with the proposed software to make it more successful commercially.

5.5 CONCLUSION

The study helped to identify the key factors for the successful development and commercialization of Web Integrated Computer-based Learning system for Indian schools. It also provided an opportunity to understand the needs and expectations of different categories of user of the proposed software. This study also provided us with new ideas to enhance the software product with additional features and utilities. All these benefits reaped out of this study will help to come out with a wonderful software solution to best suit the needs and expectations of the society.

5.6 DIRECTION FOR FURTHER RESEARCH

In continuation with this basic analysis, further research could be done by focusing on certain key features and analyzing them carefully with respect to the demand and expectations from potential customers. Also more research can be done through developing a pilot model of the software and putting it into use by target customers to get knowledge about their feedback and user friendliness of the software. It can be followed with a small scale implementation at few schools and study the impact made. These things will lead to development of best software solution to be used in schools across India.

Appendices

APPENDIX 1

Head of the Institution

1. Use of advanced technology will improve the overall efficiency of my school.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

2. This software will help us deliver knowledge in a better way by use of graphics, videos, and demonstrations.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

3. This software will help me to plan and utilize the time of teaching faculty productively.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

4. It will be very useful to monitor and track the activities of every student right from my desk using the software.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5. The graphical performance management to helps me to deeply analyze and identify the areas of improvement for my school.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

6. The additional learning materials like wiki links, pdfs on various topics other than those prescribed in the syllabus will make our students competitive.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. The implementation of this software in our school will reduce the communication gap and enhance relationship between teachers and parents.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

8. It is affordable to develop necessary infrastructure for implementing Web Integrated Learning System in my school considering the benefits we reap out.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

9. It is acceptable to increase the fee of each student by Rs.1000 PA to make-up for the subscription charges for using the software.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

10. We will be able to devote time and money to train all teaching faculty to use this software efficiently.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Any other Suggestion/ Features you wish to have in the software:

Name:

Designation:

Organization:

APPENDIX 2

Teachers Questionnaire

1. I feel the software will help me monitor and manage the performance of my class students effectively

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

2. Graphics and demonstrations will help us impart knowledge by making students understand things easily.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

3. One Click Progress Report is awesome feature – reducing manual work thereby saving time.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

4. It is easy to maintain the attendance records of the students using software.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5. Able to communicate with parents easily and can keep track of conversations.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

6. The Scheduler tool is powerful to plan and manage my activities for the day.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. The additional learning materials like wiki links, pdfs on various topics other than those prescribed in the syllabus will make our students competitive.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

8. Sharing of class notes and study materials is very using the software – It reaches my students within seconds.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

9. The communicator tool helps me to keep the parents informed about the activities/improvements/concerns about the student.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

10. Implementation of this software system will help us devote more time towards teaching related activities by reducing administrative activities to minimum.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Any other Suggestion/ Features you wish to have in the software:

Name:

Designation:

Organization:

APPENDIX 3

Parent Questionnaire

1. I feel more convenient to receive my kid's progress card delivered to my email inbox – very similar to bank statements or telephone bills.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

2. I feel use of computers and softwares will enhance my kid's learning experience – compared to traditional book based system.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

3. It is financially affordable for me to buy an Education Laptop (Rs.15,000/- approx) for my kid – or through a monthly EMI of Rs.1500/- approx.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

4. It will be convenient for me to monitor my kid's performance through an online portal – particularly keep track of attendance, home works, exam schedules etc.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5. This software will help me monitor homework and guide my children.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

6. The advance scheduling of meetings with school authorities will help devote my time as planned.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. The software based learning system will give fun-filled learning experience to my child.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

8. The additional contents available will be useful for my kid to acquire knowledge on vast areas and gain a competitive advantage

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

9. I want schools to implement this software system to bring in more transparency and efficiency into our educational system

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

10. The web integrated system will help us track the activities at school and keep updated on those days when my child could not attend the class.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Any other Suggestion/ Features you wish to have in the software:

Name:

Designation:

Organization:

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