Factors affecting the trend of technological facilities in Public and Private Schools in Islamabad; a comparative Study

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Abstract

This research is aimed at carrying out a comparative analysis of Public and Private schools located in Islamabad on the usage of technological facilities. The sample included various branches of federal government schools located in various sectors in Islamabad along with four famous private schools. The data was collected by carrying out interviews with the top management of school, teachers and students. The interview responses of all three levels differed because of the difference in the mental orientation and way pf perceiving things of people working in different levels. The interview responses were then analyzed and it was established that the motivation level of teachers, the culture of schools and the affect part of the attitude of teachers play a pivotal role in affecting the usage of technological facilities in schools. Towards the end of the research there are certain recommendations, which if brought into practice can result in increasing the usage of technical facilities, and the ultimate impact will be on better education standards of the schools and the country in the broader spectrum

Keywords: *Education system, Computers, IT, Technical Infrastructure, Public Schools, Private Schools*

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Chapter 1

Introduction

The investments being done in schools globally have risen tremendously during the last two decades after the technology revolution. Majority of the investment being done in schools is grounded on the assumption that technology involved learning atmosphere offer chances to students to better seek information, collaborate, interact, solve issues, hence facilitating them with skills sets to be competitive in the modern market place. The use of information technology facilities generally perceived as a new technique that can be employed to maximize the lives of individuals. There has always been debate regarding the factors that are important in order ensure that the maximum utilization of implemented technology has done in the educational institutions. Technology can be employed in various ways to offer resources and data, help in communicating, discover new things, and look for new identities. The employment of information technology formulates a strong learning atmosphere for the students at educational institutes and it transmutes the way of teaching and learning methods that student interact to attain knowledge in more self-directed and positive manner (Accuosti, 2014).

As compare to huge cost controls and enhanced performance levels in other sectors of industries, educational institutes like schools might not have gained the same level of advantage from the employment of information technology. The processes in schools have been very much constant around the world as activities in class rooms are largely based on final grades, standards, and output measures. Also, the use of latest technology is not an easy task for the schools because of the high costs associated with it. It is not easy for schools to bear high expenses of employing latest technology in their premises due to the fact that apart from the initial spending in placing

technology in the schools and connecting them to the internet, schools also have to repeatedly spend in order to maintain and update the software and hardware. Technology is developing leaps and bounds and schools have to spend after some time interval to acquire the latest technology to maintain the level of technology. In case of public schools, the funds are provided by the government from the tax payers' money and there is always pressure on the governments to ensure that the investments are paid off in an effective manner (Harrison, et al., 2004).

The Education System of Pakistan

The education system of Pakistan got established with the development of 260,903 institutions which holds the capacity of accommodate 41,018,384 students with the support of 1535,461 faculty members. These institutions include both private and public institutions. The Public institutions are 180,846 in number while the private institutes are 80,057. In percentage terms 31% of the educational institutes are run by public sector which 69% are managed by Public Institutions?

The Education system in Pakistan plays a very pivotal role in the success of the country. It plays a very important role in the economic development of any country but unfortunately in Pakistan the education system has been facing crises since the beginning of time and continued to remain at the lowest position in terms of literacy rate but now the situation is improving. The initiative taken by Government under the policy of Human Capital Development which was implemented in the year 2008. According to a survey carried out on Pakistan's Social and Living Standers Measurement (PSLM) the overall literacy rate is 57% out which 45% represents females and 69% represents males. If this figure of literacy rate is compared with the literacy rate in any other year it can be said that there is very less advancement in the literacy level. There has been a constant trend of greater percentage of male education as compared to female education (Accuosti, 2014)

Significance to Academia and Research

The purpose of conducting this research is to explore the education level in Pakistan and to find out the usage of technological facilities in both Private and public schools. This research has a very strategic focus as it is a well-known fact that higher education in any country requires extensive know-how about the technological facilities so if these facilities are not used during the initial years of education it can have an impact on the higher education as well. This research is highly useful for academia because it will give the academic institutions a framework for improving the ways of teaching and the comparative analysis can provide the academia a chance to know that how the usage of these facilities can lead to production of better graduates in the longer run who are more apt in usage of technology and its usage for the achievement of goals both at personal and professional level. The research will also add something new in the existing body of literature because education is a category which is not widely researched in Pakistan and thus this research will be aiming at exploring new research avenues for researchers who wish to explore the education sector in future

Chapter 2

Methodology

Rationale of Study

Technology oriented education is an under researched area in Pakistan due to the fact that there are very less institutions who encourage the usage of technology in teaching process in schools. This research is focused at touching this dimension of our education system that why the usage of technology is not appreciated by the teaching staff and the administration of private and public schools. During informal discussions majority of the people are of the opinion that lack of financial resources is the reason behind the infrequent usage of any such facility. Being a researcher I wanted to dig down this concept and wanted to analyze that what factors are actually playing a critical role in shaping the attitude of teachers towards the usage of any such resources. Secondly it has also been witnessed that in Private schools the usage of technological infrastructure is more in practice as compared to public schools. Thus I decided to pursue a comparative study of both private and public schools in Islamabad to find out the factors that are impacting the setups of private and public schools and shape the attitude of teachers towards the usage of these facilities.

Aim

To find out the factors that hold an Impact on technology oriented education public and private schools in Islamabad.

Objectives:

The objectives of this research include the following:

- Factors impacting the use of information technology is schools
- Motivational level of teachers in employing the latest technology
- Cultural barriers that can play a role in the adoption or rejection of the technology
- Impact of resources on the level of technological adoption in the schools

Problem Statements

PS1: Motivation level of teachers result in higher usage of technical facilities

PS2: Culture of schools leads to increasing trend of using technical facilities

PS3: Favorable attitude of faculty results in increased use of technical facilities.

Research Methodology

In order to prove that the above mentioned hypothesis holds true or not a research methodology is framed which will be facilitating in completing the various stages of the entire research process in an effective and efficient manner. In the initial stage a comprehensive review of literature will be carried out which will help in giving a clear idea about what other researchers have done in this domain and what did they concluded out of the research. After the literature review the research will be taken to the next level which is the survey phase. Survey analysis is qualitative in nature due to the type of research being conducted. It is believed that majority oft the respondents in Pakistan are more truthful when it comes to giving opinion in interviews as compared to their response in the form of questionnaire or any other quantitative information gathering technique. Thus, our research will be based on in-depth interviews and observation session in various schools in Islamabad. At the completion of this phase the research will be moved to analysis and recommendations phase. The last phase of recommendations will help in

giving recommendations on the existing scenario in both public and private schools. The research framework taken into account for the purpose of this research is as under

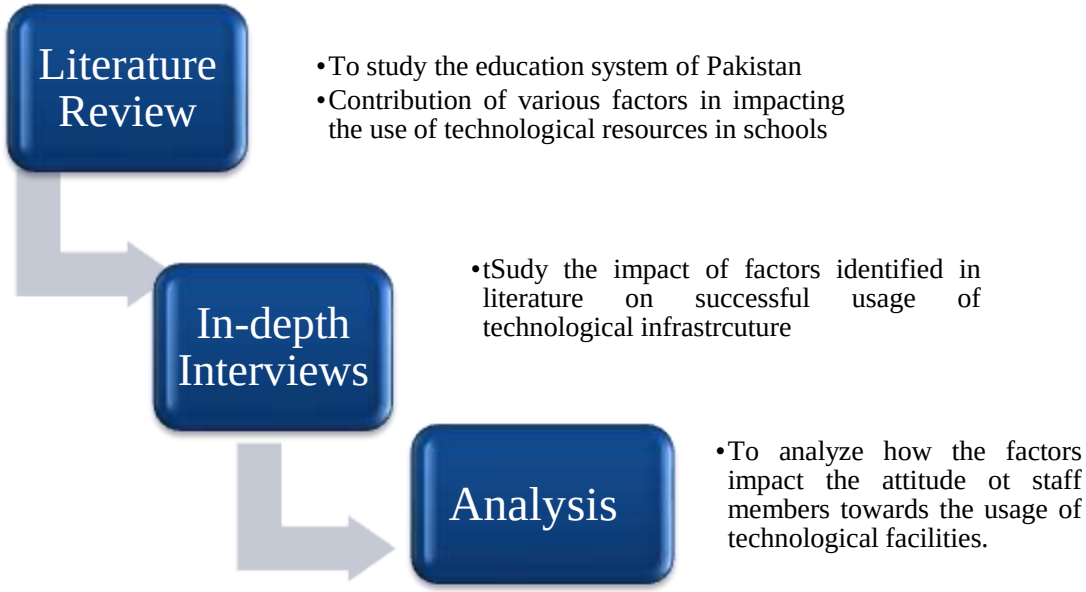


Figure no 1: Research Framework

Chapter 3

Literature Review

Technology Investments and Gaps in Technology Implementations in Schools:

The financial investment in schools around the globe in information technology has risen more than hundred times during the last twenty years. Majority of this investment has been done focused on the supposition that technology focused learning atmosphere offer prospects for students to explore and investigate data, interact and cooperate, resolve issues, henceforth facilitating them with range of strengths to be competitive in the technology focused new era in the global market. Substantial financial expenses have been put into technology developments in schools and these investments have resulted in to successful stories. Though, there are important loopholes in the educational employment of information technology that should be dealt with. First, there is a usage opening as relative to how much students in the today's world employ information technology outside the premises of school, the usage of technology inside schools is much less widespread and concentrated. Second, there is fissure gap with respect to the outcomes from the usage of technology in schools. If we compare the outcomes attained by sectors other than education, the gains enjoyed by schools with respect to investments done and performance is much less than in other sectors. Lim, et al., (2013) debates on the reasons for these two loopholes and offer recommendations to fill them by attracting dialogues regarding efficient teaching and obligating to information technology planning. Evidently, by efficiently incorporating information technology in the educational structures is more complex than offering computer and giving internet connections. Computers are nothing more than an instrument and no technology can solve emergent philosophy of education or reward for insufficient methods. Though, selection has been done in terms of objectives set for educational institutions. Within this scenario, the practices of information technology incorporation are robust one entailing cooperating features over time. Furthermore, no individual answer is there to solve the difficult challenge of information technology assimilation due to variety of stances of cooperating information technology can be selected.

Impact of Culture on Use of Technology in Schools:

The structure of schools as an ecology entails distinct parts and numerous associations that facilitate or stop the development of young creatures in the environment. Within the difficult sociocultural situations of the educational institutes, numerous groups and methods are tightly cooperated together both in and outside the schools, and formulate a linkage of changes. Likewise, these methods, units, and associations foster or stop the education of the students in the school environment. Educational institutes are reliant on other structures of ecology for instance, the structure of education and community within which it is entrenched. Any alteration in the cultural context, a shift of the organizational setting, or an initiation of the innovation is likely to alter the learning results of the students. The circumstances at various levels can alter with time, but they are always dependent on each other (Lim, et al., 2011). Information technology as an invention implemented in the educational institutes is not autonomous and insulated. Rather it is placed in the environmental structure of the schools and linked with the expanded structures. Recently implemented innovation usually needs immediate inventions in the educational institute, syllabus, evaluation, and educational institute. It also impacts the association inside and in the external settings of the school, and the enduring cooperation control alterations in the social connections. Likewise, alteration resulted by the association among the inventions and the educational structure not only evaluate how the novelty is implemented, but also impact the running of school structure. Though, the robust acceptance and development of students, faculty and school's top management with information technology and the structures regulates whether the prospects of information technology for educating and learning can be implemented in educational institutes (Zhao & Frank, 2003).

Need of Culture to Support Information Technology:

With the rising information and technological development of society, countries need learning techniques that can assist to maintain its speed with the growth of information technology. The structure of education in a society and ultimately education will not be enough to distance from other public bodies, local and global associations largely recognized in the globalized village. Education in the technology driven new era of globalization is the corner stone from where all progression and changes arise. The employment of technology in education system requires supporting culture. The culture is required to be understood with the employment of hardware

assets. The structure requires to be trained to employ IT; else, getting information technology and monetary inflow will be just a waste of assets. Though, information technology is not objective by any means it should be employed as source for interacting data in the present communal systems. Also, since the procedure of change and conversion is ever present in the human communal organization, the educational structure is inclined to changes. The basic issue is that what tactics must be implemented so that educational structures in the under developed countries do not trail developed states but develop and prosper focused on their personal requirements in the way of growth. Hamidi, et al., (2011) presented a productive discussion on the employment of information technology in schools after arguing about the part of IT and its importance in the educational systems in the developing states.

Culture of Schools to Adopt Technical Facilities:

It has been accepted worldwide the presence of technology acceptance culture is necessary for the successful application of technical facilities. The purpose of this research is to evaluate the cultural observations of the teachers teaching in high schools of Syria towards adoption of latest technology related facilities. Albirini (2006) has employed both qualitative and quantitative techniques for the purpose of this study. The research has been done to evaluate the observations of the faculty members in schools towards implementation of technical services like information technology as impacts the culture of the land and institution. The outcomes of the study reveal an important opposition in the observations of the participant faculty members regarding information technology in education and community on the whole. The faculty members have concerned regarding the ethical side of the adopted technical facilities. They fear that the implementation of latest technology can clash with the culture of the country and its importance can undermine other needs of the society. Therefore, the faculty members wanted the technology facilities that can complement the national and school culture of the Syria. The outcome of the study also put some light on the issues raised by experts of technology regarding the present cultural complexities to the application of technical facilities in the educational settings of the under developed states. They have also raised reservations on the probable route of technology in educational institutes in the under developed states, pointing out the concern that majority of under developed countries do not have the required capacity to formulate technology to be better fit with the local needs. Therefore, as a result of it, serious questions have been raised by the

policy makers of the Syria whose answers can help the country employ technical facilities as per cultural limitations of the country. Technical facilities entails computers, radios, internet, projectors, and other devices used heavily nowadays in the educational sector.

Types of Information Technology Usage among Teachers:

A total of three different kinds of computer usage between faculties were under study in this research. These styles entail integration, prevention, and technical expertise. These forms are also responsible in contributing towards student's availability to information technology and computer use. Mumtaz (200) carry out the study in schools of a large multi-cultural city. It has been found that the most prominent kind of computer employment in schools' faculty was of prevention. The faculty members keep them at distance from using the computers and also minimized the extent of time spent involving computer technology related events. The students have restricted and monotonous employment of technology software designed for practicing words. The faculty members involved in preventing the computer usage have minimum interaction with the student while they engaged in using computers in schools. On the other hand, faculty members who were involved in interaction normally accepted computer usage. These members incorporated computer technology in the manner of their teaching and syllabus. These teachers implemented practice of computer word processing focused on the objectives and requirement for the students. They have also initiated a wide variety of computer software and formulated unique and interacting sessions to help out students. Similarly, the faculty members involved in technical expertise adopted computer and perceived technology as a test. They endorsed usage of computer technology in the schools and their involvement concerning computer technology exhibited strong coaching practices like constant use, distribution of pre plan instructions, and training of students. These teachers incorporate the use of technology in the studies rather than employing them as add-ons in the customary syllabus. These faculty members also based their hard work on teaching pupils regarding the technicalities of the use of computer technology.

Motivation Level of Teachers in Use of Technical Facilities:

In the last few years, innovations adopted in schools have become highly significant for global educational reforms in order to enhance capacity building for teachers to move away from

customary teaching methods. The focus is to turn educational systems towards pupil focused techniques. Keeping in mind the self-determination theory, Gorozidis and Papaioannou (2014) employed a mix design method to evaluate motivation, and dedication of 218 teachers to take part in the training and education of an innovative educational subject. The organizational equation demonstration found that independent motivation certainly projected faculty mindset to take part in related training and development to contrivance technology innovation in the near future, which managed dedication. The outcome of the study explained that the policy experts must reassure tactics that enhance faculty independent dedication for endorsing successful application of technical instructive innovations.

Usage of Technical Facilities in Schools of Jamaica and its Impact on Student's Development:

Jamaica is regarded as one of the under developed countries globally which faces economic obstacles on a regular basis that can have serious implications for each portion of the community. Jamaican government has initiated a concept that promotes the notion of education for all. It is one of the country's major goals for the new century to increase the excellence of education for all the residents, in order prepares them to be prolific suppliers to the development of whole community. In the last few years, the Jamaican government has shifted its focus to the employment of information technology in the education in order foster long term growth the development of the country. There have been efforts made by the educational foundation made by the government to equip schools with technical facilities. The availability of latest facilities can help in training the pupils to use technical facilities like computers in the job place and to get them ready to appear in the test that have international recognition. As things stand, more than 90% of the schools in Jamaica are equipped with technical facilities like computers which has helped students to prepare themselves for the tests related to IT. The success of this project helped the policy makers to focus on the technical aspects' importance for the schools across the country. The next step included the training and development of the faculty to get immune with the computer technology so that they can transfer that knowledge to students later on. The purpose of this paper by Daley-Morris (2000) pronounces that efforts that allowed the initiation of technical facilities across schools in Jamaica. It also explains the performance levels of the students in the information technology tests during the last five years. The outcome of the study

shows that by every passing year more and more students get registered for the tests. It also underlines the fact growth of pupils in Jamaican schools enhanced imperatively. The collected data also proposed that there can be issues in the educational structure of the country that resulted in the motivating the teachers to employ latest technical facilities to help students develop and play their part in the development of the country.

Employment of Information and Communication Technology in Schools:

The purpose of employing information and communication technology for pupils is to help them find and learn new areas of study, solve issues, and offer answers of the problems. Information and communication technology makes it easy to attain new knowledge and ideas in new fields. It built up new information gathering by means of collecting, opting, managing, and explaining information and other sources of data. By means of information and communication technology, students can become more than enable to employ data and knowledge from numerous sources, and analytically evaluated the standard of learning items. ICT formulate new ways of learning for students and offer more innovative answers to various forms of learning investigations. For instance, the usage of electronic books is very common in the classes nowadays. Students can attain all forms of information and data by means of computers and other technical facilities. More importantly the usage of these technical facilities offer more comfort levels for students to read books, grasp new words to increase their vocabulary, and much more. Hence, information and communication technology entails clearly planned applications that offer innovative means to fulfill complex learning requirements. The successful implementation of technical facilities in schools needs efforts from everyone that includes the faculty members, administration, and also the students (Chai, et al., 2010).

Factors that Influence the Effectiveness of Technical Facilities Incorporation in Schools:

There are numerous factors present in the external environment that impact the development of the incorporation of technical facilities in schools. These elements entails availability of technology, convenience of information and communication technology, administrative assistance, institute syllabus, culture, and atmosphere, management practices, and extent of responsibility on faculty members. In these elements, the most prominent are the scarcity of availability of technical facilities like computer hardware and software, inadequate timeline for

course plan, and minimum administrative assistance on technical side. Fu (2013) revealed in the study that some elements have been positively linked with the information technology incorporation, entailing the presence of technology and assistance from experts, faculty, and school administrations. Therefore, technology accessibility and complete assistance are essential to incorporating technical facilities in schools. The higher the helping system and availability of technology, higher will be the incorporation of technology exertions made by the faculty members. There are also numerous internal elements that also impact technology incorporation results. These entails indulgent of information and communication technology employment, principles that may battle with the implementation of information and communication technology, behavior towards technology incorporation observations, entailing dedication to employ information and communication technology, technical services skills set, and eagerness to employ ICT. Researchers have also found two repetitive problems linked with the internal elements. At first, faculty members may apply practices focused on restricted theoretical understanding of information and communication technology usage. Second, the faculty members can be under influence to cater all the material and be tentative to let pupils devote more energy and time finding the material of their own with the help of technical facilities. These problems state that faculty member's opinions may not align with their actions. The culture of the schools which emphasize rivalry and high dangers evaluation can demotivate faculty from incorporating computer technology in the class rooms. Therefore, the opinions of faculty members do impact the employment of information and communication technology in the study rooms.

Attitude of Teachers towards Use of Technical Facilities in Schools:

The objective the research is to find out the level to which the subsequent elements forecast the usage of computers by faculty members in study room instructions, behavior of faculty members towards technical facilities in the study rooms, availability of computers for students and faculty members, training and development of faculty members to use technical facilities of schools, assistance of faculty members in the employment of computers, age group of faculty members, classes whom faculty teaches, syllabus, sex, and years of teaching in the educational institutes by teachers. The usage of computers has been evaluated in five different manners. These entails the complete usage of computers in the class rooms, student focused education, and usage of skills

required for studies. The present study by Blankenship (1998) employed both the quantitative and qualitative techniques. The target market of the research has been the faculty members of the public schools in Carroll Country in Virginia. The scholar has used survey method to evaluate the computer usage and elements related to its use. The outcome of the survey results has been evaluated by means of multiple regression analysis to evaluate which elements were forecasters of technical facilities use by faculty members in study room education. On the other hand, the qualitative section of the research has been comprised of focus groups. For this purpose, nominal group practice has been employed to formulate a ranked list of tactics to enhance faculty member's employment of computers by emphasizing on the elements destined to be forecasters. Elements that forecast usage of computer and other technical facilities differ with respect of class grade levels. Training and development has been the most usual forecaster trailed by behavior, assistance, availability and age of the faculty member. The ranked lists of tactics from the five focus groups under study entailed syllabus specific training and development, experts of training in schools, and laboratories in school building. An important inference from the study was the fact that training and development should be precisely directed to class levels and syllabus area to be efficient.

Chapter 4

Data Collection and Analysis

Data collection was carried out by using qualitative research techniques. For increasing the validity of data and to get fair responses from the interviewees we carried out in-depth interviews. The respondents of interviews included faculty members teaching at various levels in both public and private schools of Islamabad. The interviews were carried out from 3 groups of teachers in both private and public schools. The first group includes teachers teaching in primary and secondary level in private schools and public schools, the second group comprised of teachers teaching at O-and A-levels, matriculation and Intermediate level in both public and private schools, while the last group comprised of Principle, senior mistress in Public Schools and School owners and heads in Private schools. The analysis is supposed to be based on the responses of all three groups.

Unit of Analysis: Since different teachers teaches at different level and every teacher has his own perception about the usage of technical facilities so for the purpose of this research we took into account the opinion of teachers working at every level.

Time Horizon: Due to time and budgetary constraints the study is restricted to certain time horizon. The Interviews were conducted from selected private and public schools of Islamabad and Rawalpindi.

Study Setting: The study was conducted in natural environment and there were no artificial arrangements for this study. The reason for conducting this in natural environment is because I believe that in natural environment one can expect more transparent and fair responses as compared to artificial settings.

Teachers were asked a series of questions the details of which are attached in Exhibit A of the research. The respondents did not allow me to record the interviews so I took notes of the interviews and based on the responses I wrote the transcription which is attached in the Exhibit as well. The interview responses helped in getting the following themes

Content/Theme Analysis

Qualitative data analysis is often carried out via content/theme analysis. This is the most common method of qualitative data analysis and this method is based on Grounded theory. For this analysis I have recorded the transcriptions of the interviews. In order to assign meanings to the responses of the interviews and to interpret them in an effective way the data is codified. The entire procedure of theme analysis is carried out (Exhibit 3 and 4).

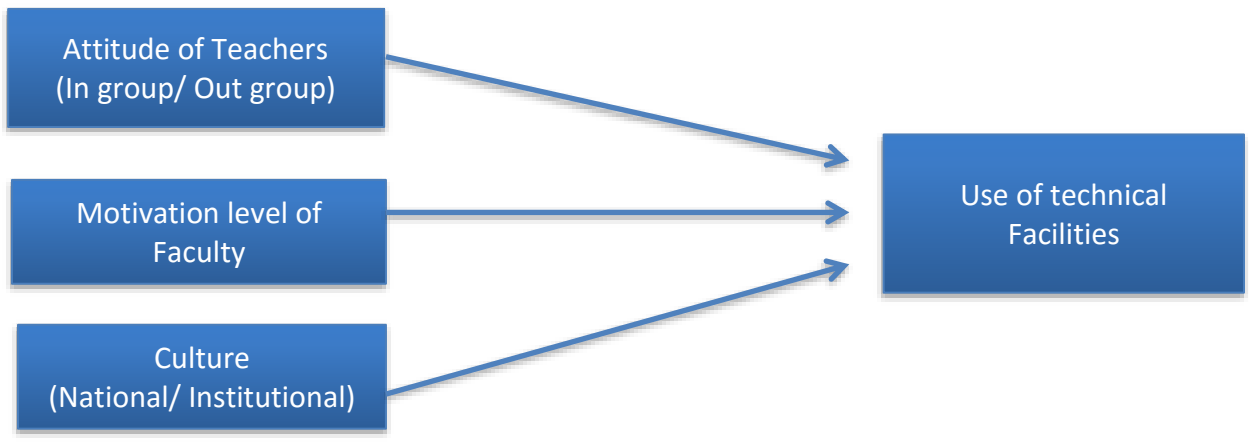
Following themes have been deductive from the analysis conducted:

Themes

- Motivation level of faculty is not very high in public schools
- Culture of the schools is not highly favorable towards collaboration and coordination
- Attitude of teachers doesn't seem very inclined towards using these facilities in public schools in particular.

On the basis of the above themes I have come across the following theoretical framework and research areas

Theoretical Framework



Comparative Analysis

In order to give check whether the selected hypothesis hold true in real time scenario a comparative study was conducted in various public and private schools in Islamabad. Within Islamabad the public schools taking into account for data collection included F.G schools located in various sectors of Islamabad including F-6, F-8, F-10, G-9,G-10, G-11. The data was collected from both boys and girls schools. On the other hand the data collection for the representation of Private schools was collected from Beacon House School System, The City School, Roots Millennium School System and HeadStart. These schools were chosen because of their popularity among parents in Islamabad. An initial informal survey as conducted in which various parents and relatives were interviewed to see which schools are found attractive by parents these days and with the response of majority of the candidates it was decided to consider these schools as part of the research.

Interview analysis in Public Sector Schools

Interviews were conducted in Public sector schools from the Principle and Vice president in the first phase. After communicating the purpose of the research they were asked various questions regarding the introduction of technical facilities like Computers, Multimedia and usage of Internet in the curriculum. In all the schools the response I got was that they use computers in their curriculum and a mandatory course of computers has been introduced in order to give the students awareness about the usage of technology. In the second phase of Interview I met the teachers and IT instructors and visited the IT Labs in those schools. The responses of teachers were quite different from that of the instructor. IT teachers who mostly possess the qualification of Masters in Computer Science were of the opinion that usage of IT requires state of the art infrastructure and the current IT lab is not sufficient to meet the needs of all the students. Majority of the computers in labs are out dated and not able to run any latest software. Also the ratio of students and IT instructors is not up to mark. For almost 500 students there is only 1 instructor. In the third phase we also interviewed the students who opted for Computer studies. The responses of students differed from what the Principle and teachers told us. Majority of the students were of the opinion that when they were given this option to choose between Home Economics (for female students) and Computers and they chose computers and later on the school didn't had enough facilities to manage the entire class to practice on computers. Secondly

the teacher who used to teach home economics took it as an ego issue that few of the students left her class and preferred to join computers and thus tried her best that the computer students shouldn't get any opportunity to learn. Another issue reported by students was the lack of practical implication. The computer teacher would tell them to open up their books and read about computers but didn't let them practice anything on computers thus their learning was only based on bookish knowledge. According to the students the teachers are rarely interested in making them learn or experience anything. Also the overall culture of the institution does not encourage using technical facilities due to the fact that the students who do not use technical facilities out group the students who takes them and same goes for the teachers. The faculty member who teaches Islamiyat or Urdu considers the Computer instructor a threat and do not even like to talk to her and the computer teachers tries to look down those who teachers the arts subjects because of the same cultural issues in our country that those who study science subjects are superior than others. The interviews were 25 in number and in almost all the Federal Government schools I got almost the same kind of replies from Principal, Teachers and students.

Interview Analysis in Private Schools

Interviews in Private schools were conducted by keeping in view the time and budgetary constraints. Only the famous private schools located in Islamabad and Rawalpindi were chosen for analysis. The first interviews were conducted in Beacon House Margalla Campus. The campus has more than 10,000 students from class 6^{th} till A-levels. There were 4-6 IT Labs within the school. When the Principal and senior mistress of the school were interviewed their attitude towards the use of technical facilities was highly encouraging. They were of the opinion that in order to well equip the students with the latest technologies its very important to give them hand-on experience to use IT resources. To serve this purpose they had hired visiting faculty members who had sufficient level of education and expertise. The Interviews with teachers were also of the idea that the growing need of information technology demands fair input of the faculty in giving the students sound knowledge and exposure about the usage of computers. Although they do not have multimedia in schools but there has been established a separate setup of Beacon House school system which is totally based on IT infrastructure and lectures are conducted on multimedia and students use IPAD to take the class notes. This initiative of Beacon House is because of the growing needs of the developing world to know more about technology. The third

phase of interviews involved an informal session with students of Beacon House, in order to get a more mature response the targeted audience were the students from 8th grade till A-levels. Majority of the students were very satisfied with the kind of machines they use in laboratory and the teachers were always available to guide them. There was no cultural barrier in that place that would restrict them from learning.

The interviews in Roots Millennium, The City School and Head Start were almost the same except for the fact that in City School the number of IT labs were lesser in number as compared to other private schools. Another issue with these schools was that they have numerous branches in different sectors of Islamabad. In majority of the cases the bigger branches with greater head count had more labs and more technical facilities as compared to smaller branches. This results in lack of standardization within the same setup.

Discussion of Results

The comparison of Private and Public schools in Islamabad on the basis of Interviews, exploration of secondary research sources and general observation revealed that there lies a huge difference between the level of usage of technical facilities in both private and public schools. The analysis of public schools indicated that technical facilities were not used in routine and when the reasons were explored it came out that the lesser usage of technical facilities is not because of budgetary constraints or any other financial constraint but because of the fact that teachers in public schools do not have the required level of motivation to use the state of the art technological resources. The reason of lesser motivation is the culture of those schools. The Organizational culture helps in dictating the do's and don'ts, acceptable and unacceptable behaviors. The places where the culture doesn't encourage innovation, new ideas and acceptance for latest trends people are not motivated to use anything new. Also research says that human beings have this tendency to accept things that resonates with their conditioning history and pre conceived notion. The teachers who are teaching in Government schools are those who have attained their education from the similar institutions and even the IT teacher never used Computer or other technical facilities in his school days so even he is the computer instructor still he doesn't bother about the importance of using technology in school level. Secondly in Public schools the intrinsic and extrinsic motivation level of faculty is less because they have this sense of security that they are the permanent employees and even if they put in less effort they

will get the same salary so they are not really motivated to go extra mile to make students learn. These things shape the behavior of the faculty towards the usage of technical facilities. Similarly when the interviews were conducted in Private schools in Islamabad it was quite visible that the culture of private schools was more collaborative and encouraged new ideas and innovation. The reason behind the establishment of this culture was the ownership structure. The person who owns the setup makes sure that all the people how have some potential must come up with new ideas so that they can attract more business. Although private schools have more of profit maximization intentions but the kind of culture that they nourish in their schools resonates with their objective. The teachers in private schools knew already that its required for their survival that they have to adopt to the latest needs of the time and usage of technical facilities is one of those. Also these schools didn't restrict the usage of technological infrastructure for Computer instructor or computer students only but all the teacher whether they teach Urdu, Islamyat or computer have to use these facilities so that they can equip the students with technological awareness in an effective manner.

While making the comparison of both the public and private schools a very strange observation came into my view. The teachers in Public schools who are apt users of technological facilities were informally grouped together and they those teachers who considered the usage of these facilities a complete wastage of time were grouped separately. It was a kind of situation in which technology vs no technology war was in progress. When I further dug down the reason behind this trend I found out that the roots of this behavior lies in our national culture. We as a nation do not encourage new ideas and innovation because we believe that if our ancestors haven't used something that means its not worth using. As a human we are resistant to change and as a Pakistani National we have less acceptance and Public school's culture is representing more of our national culture as compared to private schools. Although private schools are also located in the same geographical boundaries but their ownership lies with people who needs to bring in innovation at every step in order to generate revenue out of their ventures.

Chapter 5

Recommendations, Limitations & Future Direction

Recommendations

After carrying out the detailed analysis of the chosen research hypothesis I have few recommendations for the administration of Public and Private schools in Islamabad, which are as under

1. In order to equip the students with state of the art technology and to make them aware of the latest developments in the world it is required that Public Schools administration should make sure that the IT teachers are aware of their responsibilities towards the children. They should be given counseling sessions on regular basis to make them understand that how important their role is in preparing a generation to fight with technology war of the external word
2. The motivation level of teachers can be improved by giving them monetary and non-monetary incentives.
3. A well-managed performance management system will help the teachers know that their performance is being measured and they will try to fulfill their duties in an efficient manner
4. Teachers should be given training sessions on regular basis for computer literacy so that they have the feeling of self-development and personal grooming.

5. The overall culture of the schools should be more egalitarian and teachers should be given a chance to raise their concerns in a friendly manner so that the personal insecurities cannot serve a hindrance in the overall learning process of the children
6. In order to avoid informal group formation trainings on collaboration and team coordination should be conducted in which teachers teaching different subjects at different levels should be grouped together. In this way they can know about each other's issues in a better way.
7. Check and balance should be maintained to ensure that the curriculum pre decided for each class has been followed by the instructor,

Limitations

Although the research has tried to cover all the major aspects of the research but still this research has certain limitations due to time and budgetary constrains. The research has been restricted to only few schools in Islamabad and the number of variables taken into account for the purpose of this research are also very less. Due to time constrain only few important areas of research are addressed

Future Directions

As already mentioned in the limitations section that this research has focused only on few of the schools located in Islamabad and Rawalpindi but in future if any research plans to further dig down the topic he can extend the geographic area for research and can take into account other schools and colleges of other cities of Pakistan as well. Similarly the number of variables can also be increased to further check the strength of relationship between various variables.

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Exhibits

Exhibit 1

Sample Transcriptions

Interview Questions

Demographic Information of the Respondents (Public Schools)

ITEM	FACTOR	PERCENTAGE
Age	Age in Years	%age
	21-30	33%
	31-40	50%
	41-50	15%
	51 and above	2%
Sex	Female	58%
	Male	42%
Educational Qualification		
	Bachelors	70%
	Masters	30%
Years of Experience	1-10	20%
	11-20	70%
	21-30	10%
	31 and above	none

Demographic Questions (Private Schools)

ITEM	FACTOR	PERCENTAGE
Age	Age in Years	%age
	21-30	50%
	31-40	50%
	41-50	none
	51 and above	none
Sex	Female	60
	Male	440
Educational Qualification		
	Bachelors	20%
	Masters	80%
Years of Experience	1-10	85%
	11-20	15%
	21-30	none
	31 and above	none

Exhibit 2

Questions from Principal

- What is your opinion regarding the usage of computers and other technical facilities in Schools?
- How many enrollments do you take in an year from computer classes?
- How many teachers you have for computer courses?
- Do you consider it a necessity in today's world to use computer and technical Infrastructure in teaching?
- If a teacher comes to you and gives a new innovative idea that can improve the teaching Process by the use of technology do you encourage it?
- How often do you take input from teachers regarding any improvement in technical infrastructure usage?

Questions from Computer teachers

- How many classes do you take in a week?
- Do you consider the usage of computer a necessity in today's education system?
- Do you face any cultural barriers while teaching?
- How often do you edit your teaching modules?
- What is the pace of learning in students?
- Do you think that this institute encourages collaboration and coordination?
- How often you tried to bring in any improvement in the curriculum or gave any suggestion in improving the mode of teaching?
- Do you consider the technical infrastructure in schools enough to serve the needs of the students?
- Any areas of improvement in your opinion?

Questions from Students

- Do you enjoy taking computer classes?
- Is your computer teacher always available for your help?
- How often do you get a chance to practice whatever you learn in your computer text book?
- Do you find the study of computer useful in your other subjects?

Transcriptions

(Public Schools)

Questions from Principle

Interviewer: What is your opinion regarding the usage of computers and other technical facilities in
Schools?

Respondent: I believe that computer and their usage is the requirement of the time and we should encourage using it. In our school we have brought these instruments into practice in order to enhance the learning experience of students.

Interviewer: How many enrollments do you take in an year from computer classes?

Respondent: We usually have an average of 100-150 enrollments in our computer classes every year.

Interviewer: How many teachers you have for computer courses?

Respondent: We currently have 2 teachers employed to take computer classes

Interviewer: Do you consider it a necessity in today's world to use computer and technical Infrastructure in teaching?

Respondent: Yes, I believe it is the necessity in today's day and age to use computer and technical infrastructure. Although in our own times we never studied things on computer but time has changed now and we have to cope up with the demands of the changing times.

Interviewer: If a teacher comes to you and gives a new innovative idea that can improve the teaching
Process by the use of technology do you encourage it?

Respondent: I try to encourage new ideas but as you know in public schools we cannot implement new ideas on our own because we have to run a standardized system. So I do listen to new ideas if there are any but implementation of every idea is not possible.

Interviewer: How often do you take input from teachers regarding any improvement in technical Infrastructure usage?

Respondent: I try to ask my teachers to give me input and suggestions which I share with government personnel and if any infrastructure improvement is suggested by the teachers and I feel that we genuinely need it then I try to incorporate it into my demands from government.

Questions from Computer teachers

Interviewer: How many classes do you take in a week?
Respondent: 3-4 classes

Interviewer: Do you consider the usage of computer a necessity in today's education system?
Respondent: Yes, it is considered to be a necessity in education system but I personally think that we also attained a certain level of education and never used these facilities so it is not impossible to survive without technology. But now its my subject and I have to teach it so I try to create importance for it.

Interviewer: Do you face any cultural barriers while teaching?

Respondent: Sometimes I feel that the subject I am teaching is not considered very important as compared to my colleagues. I have lesser classes to take then other teachers and usually they think I have a lot of free time.

Interviewer: How often do you edit your teaching modules?
Respondent: Not very often. Why would I edit it? Once it is designed I just follow it.

Interviewer: What is the pace of learning in students?
Respondent: Students are quite sharp. They ask questions and they have the habit to learn. Majority of the students who choose computer are those who have keen interest in computer games so they are more interested in using computer to explore new games on the web.

Interviewer: Do you think that this institute encourages collaboration and coordination?
Respondent: I think while teaching in a government setup you cannot expect collaboration and coordination. Aisa kuch ni hota idher.

Interviewer: How often you tried to bring in any improvement in the curriculum or gave any Suggestion in improving the mode of teaching?
Respondent: During the initial years of my job I tried to give new ideas but then I realized that if I am over enthusiastic about changing the system I cannot survive here.

Interviewer: Do you consider the technical infrastructure in schools enough to serve the needs of the students?
Respondent: No, computers are out dated. They should be replaced now. Students are increasing every passing day and the kind of computers we have are not enough to serve their need.

Interviewer: Any areas of improvement in your opinion?
Respondent: Infrastructure needs thorough improvement, curriculum should be revised and more teachers should be hired.

Questions from Students

Interviewer: Do you enjoy taking computer classes?
Respondent: Initially when these classes were introduced I was really very excited but now I realized that there Is not much I can do in it. We are not allowed to use computers on our own.
Interviewer: Is your computer teacher always available for your help?
Respondent: She is there but not of much help. Because when she is available there is no free computer. When there is free computer she tells us to read the text rather than making practice things on computer.
Interviewer: How often do you get a chance to practice whatever you learn in your computer text book?
Respondent: Very rarely
Interviewer: Do you find the study of computer useful in your other subjects?
Respondent: It can be useful if we get a chance to practice.

Questionnaire Response from Private Schools

Questions from Principle

Interviewer: What is your opinion regarding the usage of computers and other technical facilities in
Schools?

Respondent: usage of computer is important in every field of life. Our school has always made sure that technological innovation should be in our yearly agenda. We take care of the equipment required for the technological education of our students on a very serious note. We try to hire highly qualified staff who handles all the technology related queries of our students.

Interviewer: How many enrollments do you take in an year from computer classes?
Respondent: Computer is a mandatory subject in every class and we have almost 1000-2000 students taking the course every year.

Interviewer: How many teachers you have for computer courses?

Respondent: We currently have 4 teachers

Interviewer: Do you consider it a necessity in today's world to use computer and technical Infrastructure in teaching?

Respondent: Yes, I believe it is the necessity in today's day and age to use computer and technical infrastructure. As I mentioned earlier we have state of the art technological infrastructure and teaching facilities because we totally understand that in 21st century the paper less environment has gained importance and we cannot educate our students without giving them quality education in every domain.

Interviewer: If a teacher comes to you and gives a new innovative idea that can improve the teaching
Process by the use of technology do you encourage it?

Respondent: I have teachers who are in the age bracket of 21-30 majorly and they usually have very good ideas and I try to incorporate them as much as possible. We have weekly meetings held in our school in which every teacher gets a fair chance to give ideas to improve his domain.

Questions from Computer teachers

Interviewer: How many classes do you take in a week?
Respondent: 5 classes

Interviewer: Do you consider the usage of computer a necessity in today's education system?
Respondent: Yes, it is considered to be a necessity in education system. It is impossible for students top cope us with the challenging world without getting formal education about computers. We cannot restrict the usage of computers to only the subject of computer but it has its scope in almost every field of life.

Interviewer: Do you face any cultural barriers while teaching?

Respondent: not really. The overall environment of the school is quite encouraging. Its fun teaching here.

Interviewer: How often do you edit your teaching modules?
Respondent: when I make my weekly planners and get it checked by the principle if she suggests any changes then we have to incorporate those, apart from that the teaching modules are already planned before the session starts.

Interviewer: What is the pace of learning in students?

Respondent: Students are quite sharp. They ask questions and they have the habit to learn. Majority of the students who choose computer are those who have keen interest in computer games so they are more interested in using computer to explore new games on the web.

Interviewer: Do you think that this institute encourages collaboration and coordination?
Respondent: not really. There is an implied struggle of power going on among faculty members all the time. I am being very honest to explicitly say so otherwise nobody would tell you but that fact it that there isn't any coordination among teachers.

Interviewer: How often you tried to bring in any improvement in the curriculum or gave any Suggestion in improving the mode of teaching?
Respondent: yes. During our weekly meetings and discussions I always give suggestions. Principle herself is quite understanding and she likes listening to new ideas.

Interviewer: Do you consider the technical infrastructure in schools enough to serve the needs of the students?
Respondent: infrastructure is ok in our main branch but for the other branches located in various sectors we definitely need more computer labs and other facilities,its like there is no standardization in terms of provision of technical facilities in main brand and the sector branches.

Interviewer: Any areas of improvement in your opinion?
Respondent: Infrastructure needs thorough improvement and standardization throughout the system.

Questions from Students

Interviewer: Do you enjoy taking computer classes?
Respondent: alottt.. this is the best class in the entire week

Interviewer: Is your computer teacher always available for your help?
Respondent: She is nice and helping and we usually catch her up in computer class so yes we can say she is always there.
Interviewer: How often do you get a chance to practice whatever you learn in your computer text
book?
Respondent: during class we can practice it and when I go back home I practice it on my own laptop.
Interviewer: Do you find the study of computer useful in your other subjects?
Respondent: yeah, its very helpful because initially I didn't even know how to make power point slides but now I can easily make those .

Exhibit 3

Table 1 Initial Coding Framework

Interview Transcript	Initial Coding Framework
Questions from Principle **Interviewer: What is your opinion regarding the usage of computers and other technical facilities in schools?** **Respondent: I believe that computer and their usage is the requirement of the time and we should encourage using it. In our school we have brought these instruments into practice in order to enhance the learning experience of students.** **Interviewer: How many enrollments do you take in a year from computer classes?** **Respondent: We usually have an average of 100-150 enrollments in our computer classes every year.** **Interviewer: How many teachers you have for computer courses?** **Respondent: We currently have 2 teachers employed to take computer classes** **Interviewer: Do you consider it a necessity in today's world to use computer and technical Infrastructure in teaching?** **Respondent: Yes, I believe it is the necessity in today's day and age to use computer and technical infrastructure. Although in our own times we never studied things on computer but time has changed now and we have to cope up with the demands of the changing times.**	Attitude of teachers Attitude towards usage of facilities Number of students enrolled in the classes Culture of school Encouragement level towards students Number of faculty members Motivation level of teachers Trend towards usage of facility Teaching faculty Usage of computers

Interviewer: If a teacher comes to you and gives a new innovative idea that can improve the teaching Process by the use of technology do you encourage it?	
Respondent: I try to encourage new ideas but as you know in public schools we cannot implement new ideas on our own because we have to run a standardized system. So I do listen to new ideas if there are any but implementation of every idea is not possible.	Encouragement of New ideas Satisfaction level of faculty Collaborative culture
Interviewer: How often do you take input from teachers regarding any improvement in technical Infrastructure usage?	
Respondent: I try to ask my teachers to give me input and suggestions which I share with government personnel and if any infrastructure improvement is suggested by the teachers and I feel that we genuinely need it then I try to incorporate it into my demands from government.	Collaboration Encouragement Infrastructure Improvement
Questions from Computer teachers **Interviewer: How many classes do you take in a week?** **Respondent: 3-4 classes**	
Interviewer: Do you consider the usage of computer a necessity in today's education system? **Respondent: Yes, it is considered to be a necessity in education system but I personally think that we also attained a certain level of education and never used these facilities so it is not impossible to survive without technology. But now its my subject and I have to teach it so I try to create importance for it.**	Work pressure
Interviewer: Do you face any cultural	

barriers while teaching? **Respondent: Sometimes I feel that the subject I am teaching is not considered very important as compared to my colleagues. I have lesser classes to take then other teachers and usually they think I have a lot of free time.** **Interviewer :How often do you edit your teaching modules?** **Respondent: Not very often. Why would I edit it? Once it is designed I just follow it.** **Interviewer: What is the pace of learning in students?** **Respondent: Students are quite sharp. They ask questions and they have the habit to learn. Majority of the students who choose computer are those who have keen interest in computer games so they are more interested in using computer to explore new games on the web.** **Interviewer: Do you think that this institute encourages collaboration and coordination?** **Respondent: I think while teaching in a government setup you cannot expect collaboration and coordination.** **Interviewer: How often you tried to bring in any improvement in the curriculum or gave any** **Suggestion in improving the mode of teaching?** **Respondent: During the initial years of my job I tried to give new ideas but then I realized that if I am over enthusiastic about changing the system I couldn't survive here.** **Interviewer: Do you consider the technical infrastructure in schools enough to serve the needs of the students?** **Respondent: No, computers are out dated.**	Inter faculty coordination Attitude of teachers towards other teachers Culture of Schools Putting extra effort in work New knowledge experience of students Encouragement of innovation Pace of learning of students Collaborative culture Encouragement of new ideas Technical Infrastructure improvement

They should be replaced now. Students are increasing every passing day and the kind of computers we have are not enough to serve their need. **Interviewer: Any areas of improvement in your opinion?** **Respondent: Infrastructure needs thorough improvement, curriculum should be revised and more teachers should be hired.** *Questions from Students* **Interviewer: Do you enjoy taking computer classes?** **Respondent: Initially when these classes were introduced I was really very excited but now I realized that there Is not much I can do in it. We are not allowed to use computers on our own.** **Interviewer: Is your computer teacher always available for your help?** **Respondent: She is there but not of much help. Because when she is available there is no free computer. When there is free computer she tells us to read the text rather than making practice things on computer.** **Interviewer: How often do you get a chance to practice whatever you learn in your computer textbook?** **Respondent: Very rarely** **Interviewer: Do you find the study of computer useful in your other subjects?** **Respondent: It can be useful if we get a chance to practice.**	Improvement domains Creating better standards Attitude of students Availability/motivation level of faculty Interaction with equipment

Table 2 Final Coding Framework after reduction of categories

Final Coding Framework	Initial Coding Framework
1. Attitude of Teachers	Attitude of teachers Attitude towards usage of facilities Inter faculty coordination Encouragement of New ideas Work pressure
2. Organizational Culture	Collaborative culture Encouragement of new ideas Usage of computers Interaction with equipment Improvement domains Creating better standards Collaboration Encouragement Infrastructure Improvement
3. Motivation Level of Teachers	Putting extra effort in work Satisfaction level of faculty Motivation level of teachers Trend towards usage of facility Increasing number of students boosts the motivation level of faculty