

Performance Oriented Information and Communication Technology (ICT): Model for Education Purpose in Pakistan. A Bahawalpur District Case Study

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Summary

Information technology brought a dramatic change in our society. In third world countries such as Pakistan is also trying to get involve this technology in every field of life. In this decade, information technology is being used in several disciplines such as education, health, agriculture and business etc. It has given a positive impact on all of these disciplines especially E-banking, E-learning and E-commerce etc. This study focuses the implementation of information and communication technology (ICT) framework to boost the progress of different less develops areas in Pakistan. This study also describes the complete methodology with all of its benefits and constraints on implementation and also proposed a framework to improve the efficiency and accuracy in education department in primary to higher level in Bahawalpur district and its five sub districts (tehsil) and also take the case study of The Islamia University Bahawalpur within city sub campuses by utilizing the successful implementation of information and communication technology for the betterment of education.

Key words:

Information and Communication Technology, IT-Centers, ICT Infrastructure, E-Classes.

1. Introduction

Recently information technology (IT) is widely used in many discipline of life. This technology brings revolutionary changes in employed field such as health, education, agriculture, business and civil defense etc. When information technology is implemented in medical field, it showed dramatic changes in this field with the early detection of diseases with latest medical tools and techniques such as magnetic resonance images (MRI), Computer Tomography (CT) Images. Similarly, in banking sector, it has made banking transaction very convenient system, similarly for education system E-learning is now becoming very popular now a day in universities and also given the name distance learning (Broekman et.al, 2002). By using E learning, education system is moving towards a

new dimension. Literacy rate of under developed and developing areas are being improved by using E learning (Kennedy, I. 2001). Actually, it is fast and quick respond system for those regions where sufficient resources are not available. It has been observed that by using the (ICT) infrastructure in different disciplines a better and impressive progress can be considered for theses field. In Information technology (IT) actually internet is the backbone of this infrastructure; it is the life line of all the progress in different domain and sharing and distributed knowledge through different resources such as web, video and audio sharing etc. ICT can be used for training, teaching and learning purposes in all employed disciplines (Smeets & Mooij, 2001). All of these audio video sessions bring a lot of new ideas and suggestions for solving problems (Ssekakubo et-al, 2011). Overall this technology facilitates the users to overcome different technical and non-technical issues (Faraz et.al, 2009) i.e. software and hardware, and different factors related to performance, budget, time, and organizational culture (Khan, A. 2009).

2. Material and Method

2.1 Impact of Features on ICT Framework

There are some basic features which have an impact on ICT framework:

- a) ICT Infrastructure
- b) Schema
- c) USERS (Internal & External)

a) ICT Infrastructure

The basic issue in Information Technology implication is its complicated infrastructure availability. Actually, whenever IT infrastructure could not be available in all

regions, at that time its implementation would not be possible. It needs technical experts with lot of financial resources would be deployed (Al-ruz & Khasawneh, 2011). Now information technology advancement in the form of bandwidth resources such as fiber optics with hardware and software, beside this, there are many others requirements which are fundamental needs for the implication of the system. These requirements come under the performance based umbrella such as functional, non-functional, system, user with cost, reliability, accessibility and durability etc.

b) Schema

Schema basically describes the working procedure of implementation. It has two parts logical and physical schema.

i) Logical Schema

Logical schema describes the internal structure of the system. How user request initiate and then further processing to its final destination. it has included particular syntax and semantic with rules. Logical schema is responsible for the internal processing of any query and after completion of

internal processing; the technical user is responsible to manage all the internal issues and to accomplish the procedures successfully.

ii) Physical Schema

The appropriate response will be appeared on physical schema or layer and end user is responsible to feedback the application. End users feedback would be considered final opinion for the success or failure of the system.

c) USERS (Internal & External)

Information Technology users play an important role for its implementation in different domain. Actually, user here are two types 1) Internal, who are technical person and works on ICT infrastructure and its implementation. They are IT experts in different specialization such as network, database, web experts and programmer or software engineers while 2) External, these are end users who used the application and give feedback to technical person what are issues they have to face using these applications (Almekhlafi & Almeqdadi, 2010).

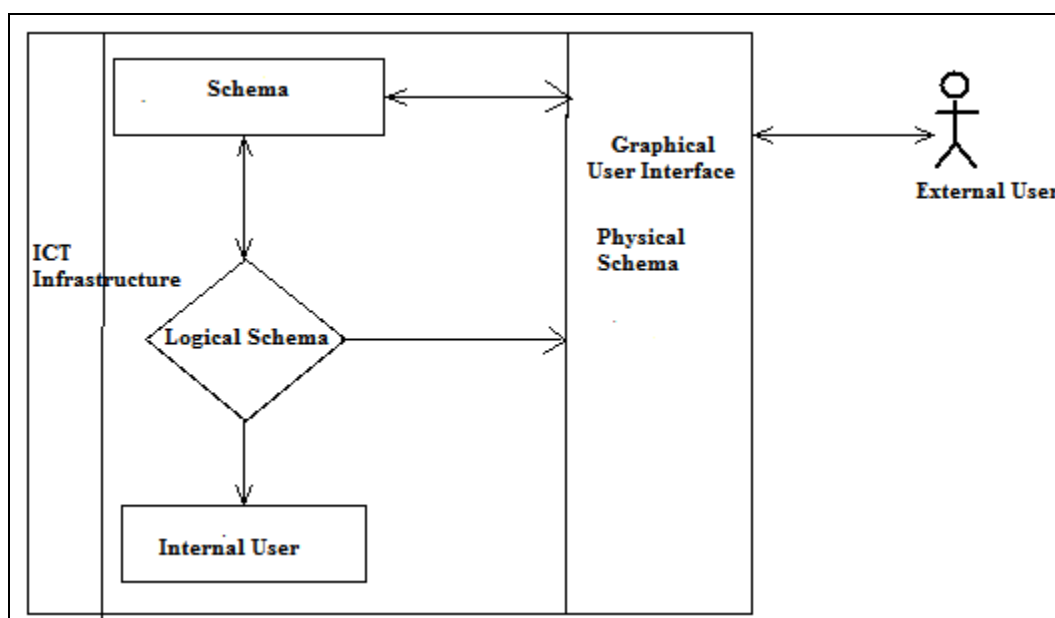


Fig. 1 Information and communication Technology (ICT) framework

2.2 Case Study & Implementation of ICT Framework

For implementation aspect, we have taken a case study of Bahawalpur district with its five sub districts (tehsil) for

education and health and Islamia University Bahawalpur city three sub campuses. Given below detail is discussed.

a) A Case Study of District Bahawalpur (Pakistan):

We have taken the case study of Bahawalpur district (Pakistan) and consider the education and health department regarding the available resources and found actual ground conditions in Bahawalpur. It is the largest area wise district of Punjab while education and health departments are in worst conditions. We have also been here discussing the Islamia university Bahawalpur.

b) The Islamia University Bahawalpur (ICT) Model:

This model is based on the Islamia University Bahawalpur (Pakistan) sub campuses within the city. These three sub campuses Baghdad ul Jaded, Abbasia and Khawaja Farid Campus which are connected each other at 100 megabits per second (MBPS) to the internet cloud, provided by the Pakistan telecommunication Limited (PTCL). In future, we have proposed two IT-Centers for Bahawalnagar which is almost 200 kilometer towards east and Rahim yar khan sub campus which is also 200 kilometer towards west from the main Bahawalpur city campus. The basic objective of this model is to communication among different centers such as video and audio session and seminars and E learning and teaching would be so fast, quick and reliable.

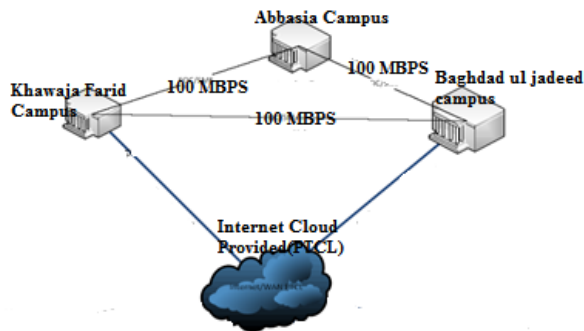


Fig. 2 Islamia University Bahawalpur (ICT) Model

3. Results and Discussion

We have suggested the Islamia University Bahawalpur (ICT) model which would be further extend in the whole division. We have also proposed the IT-Centers for video and audio sessions and training purposes where latest tools and techniques have been introduced for the remote areas. In these IT-centers different subject-experts such as medical doctors, agronomist and engineers can give their special lectures and seminars to their respective domain (Castro & Alemán, 2011). By implementing this model, University can start their classes in remote areas, called E-

classes and boost the literacy rate in this region which is lowest literacy wise in Punjab. Similarly, we have also discussed the literacy ratio in district Bahawalpur with its all five tehsils. It has been observed that Bahawalpur tehsil is best among others tehsil of Bahawalpur (Khan, A. 2009). We have also developed the questionnaires included the modules such as Primary education, secondary education, higher education, technical education and basic health opportunity. This questionnaire is distributed in all five tehsils of district Bahawalpur and find out the following results.

We have found that in tehsil Bahawalpur, education and health results were better as compared to other tehsils. It is the reason that in Bahawalpur City the basic infrastructure is strong as compared to other ones. Similarly, other health facilities are also better as compared to others tehsil. We have found these results in literacy and shown in table 1.

Table 1: Literacy wise Tehsils of district Bahawalpur (Pakistan)

<i>Tehsil</i>	<i>District</i>	<i>Literacy Rate</i>
Bahawalpur	Bahawalpur	47%
Yazman	Bahawalpur	30%
Ahmadpur East	Bahawalpur	34%
Khairpur Tamewali	Bahawalpur	29%
Hasilpur	Bahawalpur	34%

Literacy wise Tehsils of district Bahawalpur are represented graphically in given below figure 3.

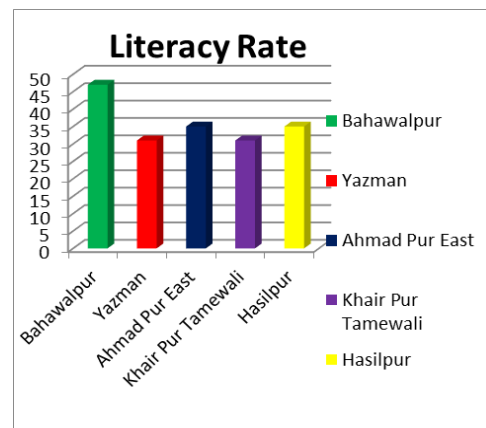


Fig. 3. Graphical representation of literacy rate in Tehsils of district Bahawalpur (Pakistan)

We have also found these area wise union counsels in all five Tehsils of district Bahawalpur (Pakistan) and shown in table 2.

Table 2 Area wise Tehsil (Union Counsels) of district Bahawalpur (Pakistan)

<i>Tehsil</i>	<i>Union Counsels</i>
Bahawalpur	36
Yazman	18
Ahmadpur East	31
Khairpur Tamewali	8
Hasilpur	14
Total	107

Union counsels in Tehsils of district Bahawalpur are represented graphically in given below figure 4.

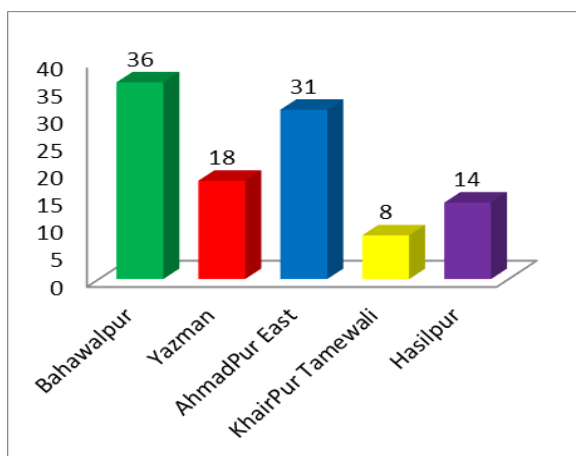


Fig. 4 Graphical representation of area wise union counsels in Tehsils of district Bahawalpur (Pakistan)

It has been observed that by implementing this ICT model, we can enhance the education system with better medical facilities in the entire region (Ertmer & Otterbreit, 2010). This model can be implemented and enhanced further in different domain (Supon & Ruffini, 2009) such as medical, agriculture, civil administration and civil defense can bring revolutionary changes in this entire region (Palak & Walls, 2009).

4. Conclusion and Future Work

For this study, we have demonstrated different issues which are directly or indirectly relate to this Information and Communication Technology and tried to implement the ICT model which have the capacity to overcome or

reduce these issues. By implementation this model in others disciplines it can make betterment in those disciplines.

In future, we will try our best to take a case study for implementing this model with some enhanced features in Islamia University Bahawalpur.

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