

## **Collection of Departmental Information by Utilizing Computer Technology: Evidence from Schools of Karachi**

Wahid Farooqui\*, Muhammad Iqbal Ahmed\*\* and Mohammad Pervez Wasim\*\*\*

### **ABSTRACT**

This paper is an analysis of Collection of Departmental Information (CDI) of Education Department of Karachi, but the concept of the paper is general in nature and applicable to every department of any country for the purpose of computerization of all the related records and CDI. The Paper examines the existing manually run infrastructure of CDI for onward submission to concerned departmental authorities. With the advent of information technology, the transformation and collection of information is analyzed for comparison between traditional source code and computer based working system. Trend of introducing computer in Government Departments has been examined and recorded with positive results. The Governor of Sindh seems to be very serious and has much emphasized the need of using computer technology for easy access, efficient, diligent and versatile functioning of the departments. In the light of results based on interviews, literature review and their analysis, policy implications are made for better Management of CDI for concerned authorities.

**JEL. Classification:** O32, M12, L86

**Keywords:** Manual Information, Computer Technology, Versatile, Diligent, Acceleration, Access and Management

### **1. INTRODUCTION**

Background of this paper can be given with an introduction of study of Karachi Education Department. Karachi is the capital of Sindh province and metropolitan city of Pakistan. In this metropolitan city private schools are comparatively sharing

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quality education than public schools, being run under the auspices of Government at District levels. In fact, the staff in public schools is well trained, highly educated and at the same time school buildings are spacious than private schools. In fact government run schools are playing major role in sharing with poor masses, especially in rural areas. However, for better functioning of schools a positive approach by the concerned government department is essentially required for further improvement.

Government of Pakistan, along with other Reforms Measures (RM), has recently adopted an Education Sector Reforms Action Plan (ESRAP 2003), which proposes to increase the standard level of public examinations and, to decentralize it in order to encourage public private partnership in education. This follows a reorganization that nearly 27 percent of all the enrolments, is through 36000 institutions of private sector (B.R 2003).

It is clear from 27 percent enrolments by private sector that major areas of enrolments are registered in public sector, which needs RM. Education Sector Reforms Action Plan also indicates that our government is very enthusiastic in RM. With the taking place of RM, the computerization of CDI also becomes essential and thus this paper is exploring the CDI.

The statement of problem of this study by taking the example of Karachi (Pakistan) is explained keeping in mind the general concept. The Government Department has adopted different ways to manage schools according to the rules set by the government. This topic begins with brief description of the existing legal infrastructure along with the identification of certain factors, such as the introduction of electronic computing devices and electronic photo copying machines, in schools of Karachi. It then outlines the role of digital technology to speedily access the information and CDI. In Government offices it is needed to access all the required information and to keep it on the tips of fingers. Government, NGOs, donors and policy makers need it to make policies and to prepare strategies for further development. In the past or pre electronic period, Planers, Policy-makers, Investors, Writers, Researchers, Donors, NGOs, and Government used to face difficulties in fast decision making, which requires accurate and latest data for evolutionary planning, especially in the development of rural sectors of the country.

A few research papers are also available in Pakistan relating to this study like: Impact of IT Investment on Revenue and Productivity of SMEs in Pakistan (Rehan 2003) and Knowledge Transformation and Economic Development: The Role of Digital Technology–An Analysis (Herani, Rajar, Zaman and Alam 2007).

In Pakistan no attempt has been made to estimate and analyze the growth in evolution of information technology and transformation role of information relating to CDI and to minimize traditional code. Keeping in view the above facts this study is carried out

Thus the main aim of this study is to see the trend of evolution in information technology transformation, especially in the management of Schools. Objectives of this study, especially to be examined, are as follows:

- (i) To examine the trend in utilizing the power of computer technology in the Management of Schools.
- (ii) To make comparison between traditional code or manual functioning, and computer based working system.

Hypothesis given below are tested theoretically and with the open polls of computers' experts in the light of objectives:

- (i) It is hypothesised that Computerized Management will enhance the diligent working capacity and help in speedy decision-making.
- (ii) It is also hypothesised that presently the infrastructure of traditional and manual collection of information is slow and mostly inaccurate.

Methodology for collection of data is based, on interviews with computer experts, open poll opinions of different employees of education department, and wherever felt necessary, secondary sources are also used. Electronic sources are also used where data could not be collected with traditional methods.

Structure of the paper is formed as: in Section 2 Literature Review is provided in details with the support of collected available data. In Section 3 Discussion is given. Finally in Section 4 Conclusions are given and Policy Implications are made to fruitfully utilize the modern technology.

## **2. LITERATURE REVIEW**

Literature review relating to this study, at national and international level, shows that the literature on the subject is available such as:

### **2.1 UCI Research in Configuration Management (CM)**

It is aimed at extending support beyond traditional source code and to provide ubiquitous CM across all phases of the software life cycle. Using the central abstraction of configurable software architecture, many specific problems are addressed on an individual basis, yet coordinated, including advanced repository support for the creation of large-scale, distributed, and development-time CM systems; supporting automated software release, install and update, providing run-time CM, and also managing product line architectures as sets of versioned components, connectors, and interfaces (CM).

### **2.2 Computer Supported Cooperative Work**

The widespread adoption of Internet Technologies and the Integration of Communication Networks into everyday organizational work has led to an ever-increasing interest in the role, which information systems and communication

technologies can play in supporting collaboration. ISR's research in Computer-Supported Cooperative Work (CSCW), takes a broad-based approach that focuses on the social and organizational factors affecting successful adoption as on the technical challenges for applications and infrastructures. Topics of current interest includes the role of technology in supporting distributed and mobile work; the use of virtual meeting technologies in large organizations; infrastructures for group information management; expertise recommendation; virtual worlds supporting working communities; and awareness technologies (CSCW).

### **2.3 Work Done in Pakistan**

In Pakistan analyses of such type of studies is limited to only few studies and practical work like: In *Computerization of PTCL*, there is latest technique of complains and one gets auto generated complaint numbers and entertain them. Bills of KESC and Gas Company are paid through banks and in case of difference it is automatically adjusted. Work of AG Sindh, LIPRA, NADRA's Computerization, NADRA KIOSKs, NADRA Swift Registration Centers (NSRCs) and encashment through ATMs and credit cards are the evidences of best computerization system.

Computerization of Government Records is encouraged. Sindh Governor Dr. Ishratul Ebad directed concerned officials to expedite the computerization of functioning of all the government offices in the province; as well as cases under trial at various courts. Addressing a meeting at the Governor's House, he said that expediting the disposal of cases pending in courts would relieve the masses and lead to the progress and prosperity of the Sindh Province. Moreover, computerization of court records would help in case follows up, he opined.

The meeting decided to post 'Secretary Litigation' in the Secretariat of Sindh and Chief Secretary to ensure better coordination between the office of Advocate General and other departments. Furthermore, the meeting was told that Rs. 40 millions was earmarked in the new budget for computerization of all Advocate General offices. After completion of this project, a single network would link the AG offices of Karachi, Hyderabad, Larkana and Islamabad.

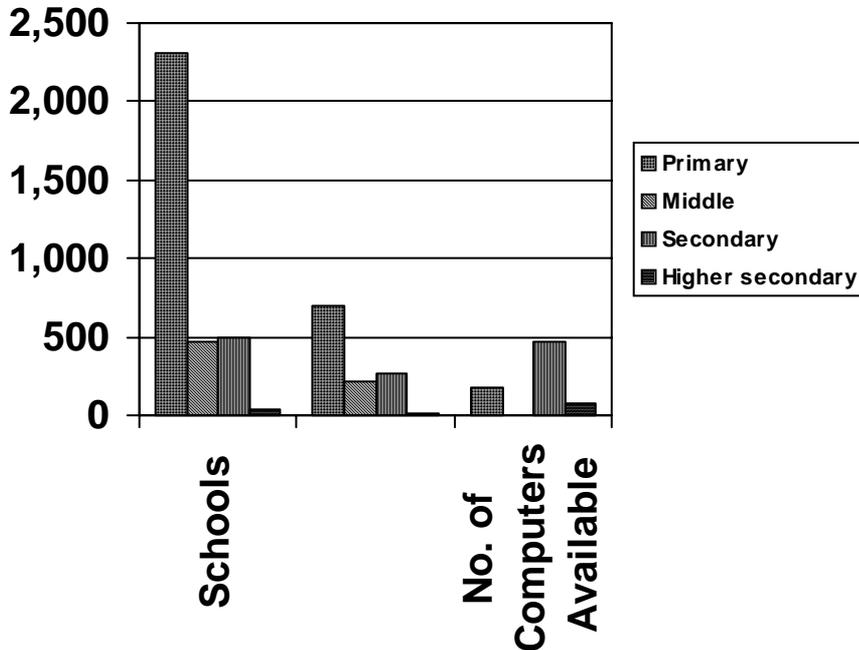
Ebad also instructed to post a law officer in the Provincial Board of Revenue. He asked the city government to evolve a strategy in collaboration with the AG office for under trial cases. He maintained that the transparent pleading of cases would not only assuage the difficulties faced by the common man but also increasing the income of the city government (*itworldpk*).

### **2.3 Sindh Education Management Information System**

Karachi is the Metropolis and capital city of Sindh Province of Pakistan. There are 2,315 primary schools, 467 middle schools, 498 secondary schools and 34 higher secondary schools and total schools are 3,314 (SEMIS 2002-3). Out of these it seems that total number of computers used in schools is 731 only (SEMIS 2004-05).

According to SEMIS report 2005-06, there are 2,638 primary schools, 549 middle schools, 532 secondary schools and 33 higher secondary schools. Total number of

## Number of Schools With Facilities



schools is 3,752 and out of which 2,246 schools have electricity available. It means only 60 percent schools have electricity available.

Table-1  
Number of schools with Computer facilities

Type	Schools	Electricity Available	Computers Available
Primary	2,315	701	183
Middle	467	219	003
Secondary	498	266	473
Higher secondary	34	17	72
Total	3,314 p-14	1,203 p-12	731 p-14

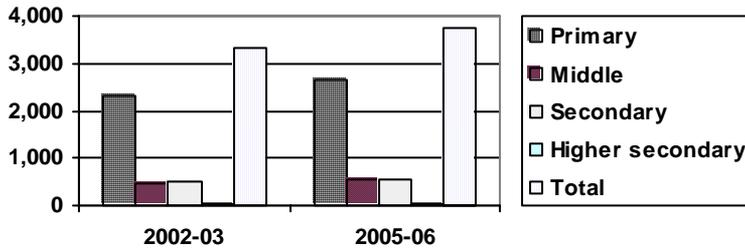
Source: SEMIS, (2002-03)

Table-2  
Number of schools with Computer facilities

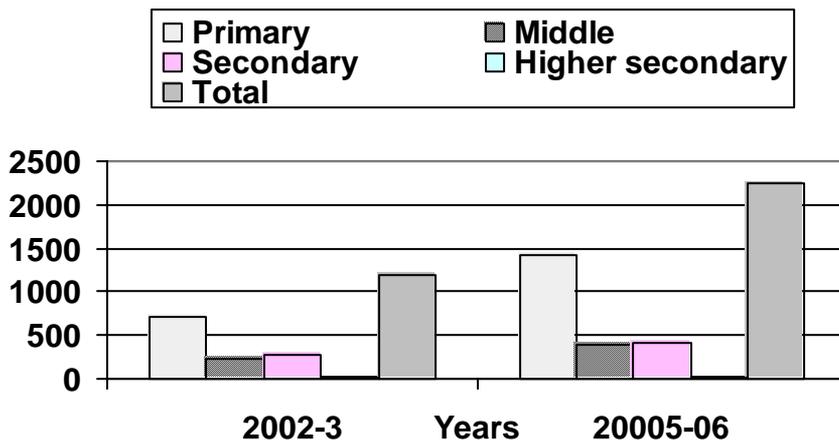
Type	Schools	Electricity Available	Computers Available
Primary	2,638	1,423	N.A (Not available)
Middle	549	381	N.A
Secondary	532	416	N.A
Higher secondary	33	26	N.A
Total	3,752	2,246	N.A

Source: Karachi SEMIS Census 2005-06

### Trends of Growth of Schools



### Trends of Availability of Electricity in Schools



### 3. DISCUSSIONS

This study is limited to only public schools, which are managed and controlled by Executive District Officer (EDO) of Education Departments of Karachi. At secondary level, every school is provided with only one clerk, which is responsible to manually collect the information required by the concerned department. In most of the schools even manual typewriter is not available<sup>1</sup>. This is the Century of Light and we have entered into the emerging age of information technology, which has reduced the world into a global village. Unfortunately, we are still following old system of traditional information collection, which is time consuming, cause of money wasting and delayed decision-making. The important system of CDI is felt by all but still being ignored by majority.

In fact, every type of information, relating to management of schools, is already available in the monthly reports, which are regularly submitted to District Officer Education (DOE). However, it is observed that when a new officer is posted, he desires to have the latest information in the form of statements, to understand the activities of his department. The records are maintained haphazardly and there exist no system to immediately find out or sort out the information. Thus the immediate access to information for a new comer is either difficult or time consuming. Therefore an enthusiastic officer, who intends to improve the system, fails to achieve the goal of quality education in schools, or monitoring the functioning of teaching or non-teaching staff or to speedily resolve the matters relating to promotions and increments; to check ghost staff, filling up of vacancies; and to maintaining day to day financial matters under his jurisdiction. The position of vacancies in various cadres, which exist, but not known to the concerned authorities to deal the promotion or direct appointments in required cadres. This is a fact that no body is ready to take the trouble of searching old records or compile information from dusty files, which are manually maintained in government departments. This is usual practice to avoid action with the one or the other pretext thus badly affecting the proper functioning of Education Departments. Interactive affects can be observed by going through the official records and annual results of Secondary and Higher Secondary Examination.<sup>2</sup>.

It is well known that each and every order of appointment, transfer and retirement is issued from Head Office, and an office copy is kept in the relevant/personal files, yet that office itself is unaware when asked of the existing position. We lack in planning. This is an age of ICT (Information Communication Technology) and though the Education Department have good intention to promote the quality education by introducing computer studies, which has been made a compulsory subject in

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<sup>1</sup>Choudhary Iqbal 2005. He is president of all Head Masters Association, of Government and Private Schools, Karachi.

<sup>2</sup> Interviews of clerks, school teachers and heads as open poll questions.

Secondary School Certificate (SSC) and Higher Secondary Certificate (HSC) classes, yet there are not enough computers to achieve the goal of CDI. Even the offices of Education Department are deprived of computer facility.

It is worth mentioning to note the example of making seniority list for High School Teachers (HSTs). It is quoted that each and every record and entry relating to the seniority list is kept in the relevant files. Newly posted officers are always demanding the latest position of seniority list for promotion of HST to SS (subject specialist) from HSTs. This information already exists in the seniority list of HSTs. Only new thing required by the Officer concerned is to know the number of Teachers, who have Master Degree and the subject of their Master's Degree. In fact teachers also provide complete information about their educational qualification in the prescribed forms, which are available in the HSTs files. It is time consuming, laborious, and delayed information sharing with higher authorities by head masters, and DOE office staff concerned. Lots of documentations is demanded to update the activities of school such as new enrolments. In fact, all the other information is already available in their official records. This is, in fact, becomes a burden upon the shoulders of teachers, and it also requires extra office expenditure, which can be used for other purposes. When information is once submitted it should be properly recorded for future reference, thus the purpose of computerization of documentation is essential. Only God knows where the old record is dumped? All this happens due to manual system of CDI<sup>3</sup>.

The Delivery of Quality Education is required at all levels, for improving the quality of social capital through a comprehensive, logical and integrated approach. This is to be achieved by utilizing expertise, transparency and honesty in planning and implementation, providing access to improved teacher training programmes, curriculum reforms, multiple textbooks and other innovative projects. Examination Boards are being strengthened to conduct quality audit with recognized standards and value of certification to be regularized for global equivalence.

To bridge the digital divide, Information Communication Technology (ICT) is being encouraged in all public sectors' institutions under public-private partnerships. Punjab, Sindh and NWFP have made major breakthrough in introduction of computer courses at Secondary and Higher Secondary level through private sector initiatives.

In order to meet the human resource needs of the country a shift to Science and Technology is being made at the Secondary and Higher Education levels, thus creating employment options for young men and women. An innovative project of video- textbooks and library for secondary schools is being initiated in collaboration with the AIOU and Ministry of Science & Technology (ESR 2001-2004). ESR 2001-2004 requires constant efforts to reforming suggested innovations with concrete result. It can be observed that computerization of CDI from schools to head office is not much encouraging. It is not in practice according to open poll of teachers and President of Head Masters Association of Karachi.

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<sup>3</sup>Choudhry

### **3. CONCLUSION AND POLICY IMPLICATIONS**

The main aim of this paper was to see the growth in the evolution of information technology transformation in Schools Management. Objectives of this study especially were: (i) To examine, the trend in utilizing the power of computer technology in the Management of Schools. (ii) Comparison in between traditional code or manual functioning, and computer based working system. Using the open poll question interviews model of concerned personalities and secondary information data, these aims and objectives were examined.

Analysis suggests that evolution in information technology is showing increasing trend. Trend in utilizing the power of computer in the management is also going up but it needs deepened planning and sincerest training of head office staff. Comparison of utility shows that there is limited work done, but the amazing results are being achieved. It is expected that if School Management System is computerized then the officers will be more productive as compared to old manual systems.

The results suggest that the computerization system will be productive. It will save the time of officers in decision-making and staff will be able to perform their responsibilities efficiently for the development of their departments. This specification is consistent with theoretical findings and is found in previous practical work of PTCL, NADRA and some other departments of Pakistan. This implies that the current progress in this age of computer is significantly affected by manual system of management in education.

Results also show that government is sincere in achieving the goal of quality education by encouraging the computerization of the departments; and has supplied computers to some schools. Governor of Sindh has ordered to computerize all the Government records. Computerization of AG Sindh by LIPRA is appreciable, but it has some limitations. G.P Fund has not been computerized. SED numbers still need verification for final payments etc.

In the same way creative thoughts are also required for the smooth education system, especially in connection with collection of departmental information. For this purpose innovative policy implications are made as under:

- All the date wise entries, which are made in service books, be compiled in computer's database to monitor ghost staff.
- The Personal History or data containing date of appointment, date of joining (cadre wise), promotion and selection (grade wise) will help in maintaining seniority list for future promotions or appointments etc.
- The computerized record will help in maintaining data of expected retirements by which planners will come to know that what amount of pension and gratuity funds would be required.

- The Education Department will have vacancies position, to be filled in the fiscal year, and the budget for new posts.
- Service record of each employ will automatically be maintained and can be seen as and when required.
- The computerized system will protect the department from frauds in GP fund that happens mostly in primary schools.
- Automatic up-gradation of seniority list will be easier and less time-consuming.
- It will save the time of Policy makers and higher authorities to find the data at their fingertips. It will make the authorities independent from the tactics of lazy lower staff, who always avoid or ignore laborious nature of work such as collection of data.
- This system will help the teachers to perform their tension free duties and safety net from working such as preparing sets of photocopies of documents again and again.
- The teachers, who are always conscious and worried about their seniority list, will be free from tensions of appealing about seniority and claims for original position.

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