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Need Analysis of School Management Information System for Public Schools in Punjab (Pakistan)

Abstract   *The research was designed to identify and analyze the need for School MIS at secondary and higher secondary school levels in Punjab. Three separate questionnaires were developed for school principals, teachers and parents. The population of the study was the principals, teachers and parent members of the school councils of public schools. Punjab has 36 districts and the study was delimited to 12 districts selected randomly. A 10% sample from each of twelve districts was taken. Findings of the study indicated that there is no type of school-based MIS available in public schools and there is a dire need of school-based MIS to easily record and retrieve information.   It was concluded that school efficiency cannot be improved significantly without introducing school-based MIS in public schools of Punjab.*

Key Words: School MIS, management, information system, SMIS, SIMS

Introduction

The 'information' today is a precious commodity, necessary for the success and development of individuals as well as countries. The importance of information in the management process is recognized globally. This situation led the world to convert their information systems from manual to computer-based, connected with the internet.

In this age of information technology, organizational managers have to collect volumes of data, convert it into information and use in the decision making to achieve their targets. Information is a resource like capital and manpower in the modern world (Reddy, Srinivasu, Rikkula, & Rao, 2011).

In Pakistan, no computerized educational data were available up to the 1980s. The educational activities were very slow and tiresome. Obsolete and unauthentic data often caused many defects in planning. Therefore, the need for an improved data collection and processing mechanism was felt and an EMIS pilot project was initiated in the 1980s in Peshawar (KP). Later, activities were expanded and a National EMIS project was launched during 1991-1993 (Amin, 1994).

Now a national level EMIS is working under the umbrella of the Academy of Educational Planning and Management Islamabad. AEPAM is responsible to research educational issues. However, it is facing many problems like inadequate funds, issues of data collection and analysis, insufficient staff, and a nominal role in policy matters (Human Development Fund, 2002).

In Pakistan, a national and provincial level EMIS although exist but it gives the overall picture of education of the country and does not fulfill the needs of schools.

The study is beneficial for government to develop a school based MIS for public high and higher secondary schools. School MIS has been successfully functioning in many developed countries for the last more than two decades. School based Management Information System is expected to fulfill the information needs of education managers, teachers, students, parents and society. It may be helpful for school heads by providing the operational data for planning, scheduling, controlling and in decision making for smooth functioning of the institutions. It may be helpful to store student information which enhances the decision making related to the students' development and progress in the class, planning

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their placement activity better and also managing alumni in the long run. It may help teachers to plan their teaching strategy in a better way with the help of up to date student record.

The main purpose of the research was to study the availability of School MIS in the public schools of Punjab. The research was intended to identify the need and importance of school based MIS for school improvement.

Literature Review

In the last 25 years, school information management systems are being used in the developed countries. A research conducted in Portugal reveals that structural changes in the school system have challenged the old setup. The study suggested a new MIS for Portuguese schools to resolve the identified problems and meet the needs of a modern school. (Nelson, 2013).

According to a British government agency BECTA report 2005, School MIS are 'crucial to institutional effectiveness'. These tools enable school managers to improve efficiency, effectiveness and the performance of their schools. This can be achieved through SMIS by reducing the staff workload, effective time management through systematic timetabling, emphasizing individualized learning, providing analytical tools of assessment to the teachers and providing online access for parents to improve parent-school links (BECTA, 2005).

Many researchers have mentioned a lot of advantages of School MIS in planning, administration and management of schools. Telem (1996) noted in his study that School MIS brought improvements in decision making, teachers' interaction and instructional areas. SMIS brought school affairs business-friendly. Visscher (1996) mentioned that SMIS provides in time information to the teachers and administrators which facilitates planning, policy-making, and evaluation. In this way, it helps in improving the school performance. Nwagwu (1995) indicated in his study that record keeping is the lifeline of school planning process. It is an impossible task to plan and manage an institute effectively where record is not maintained properly. Nwagwu (1995) believes that accurate and adequate data about school infrastructure, students and staff is necessary for effective school planning and management.

The researches indicated that School MIS has modified the role of school administration and management. It has also changed the working environment of the schools (Pegler, 1992). The School MIS can change the leadership style, decision-making process, responsibility, working environment, HRM, communication and planning areas of school administration and management (Gur, 2000).

In Short, a School MIS is a tool of management that helps to promote teaching-learning process and improve the school's performance. It should be helpful to 'increase success and decrease failure' (Jenkins, 2003). Another researcher (Demir, 2006) explored the perceptions of schools heads in Turkey about the use of SMIS. Results indicated that it contributed positively to school administration and management. Ahmad et al (2010) suggested the design of a novel system for students of Ayub Medical College Pakistan to resolve various problems. The researchers designed a computerized database of student information system. They studied old manual system of Ayub Medical College, Abbottabad Pakistan and suggested a computerized system to resolve complications faced in manual system. As a result of the study, a comprehensive database for the students (AMCSIS) was introduced. It was the claim that system can store vast data and generate reports quickly. The system was helpful to manage the information and use it easily and have effective data control. The system enabled the users to flexibly access data through a graphical user interface.

In Pakistan, some private educational institutions like 'The Smart Schools' have launched their own school MIS which is web-based system having an LMS Module, Academic and Result Management Module, Parental updating via SMS Module and Lesson Planning Module. Roots School System also has its own school MIS and a website www.rootsschool.edu.pk. The website contains general information about schools and their activities. Beacon House School System is another well-known private school chain in Pakistan. They have branches in Asia, Europe and the Middle East. They have a well-established school MIS. Their website www.beaconhouse.edu.pk has menus about school

registration, contact us, FAQ, curriculum, alumni, parent/student information, career and franchising. Each menu has further links to different school activities. They have a comprehensive student registration web portal. Student and their parents can submit admission applications online.

The review of the literature indicates that school-based management information system is the basic need of any school to meet the challenging demands of a rapidly growing global society. Pakistan has although developed a central EMIS but there is no school-based management information system available to the school heads and teachers so that they can plan their educational activities efficiently.

Research Methodology

This was applied research and descriptive in nature. Quantitative techniques applied in compilation and generation of results. The study was based on the survey of schools to collect data from stakeholders i.e. principals, teachers and parents.

Population

The study was conducted in government high and higher secondary schools of Punjab (Pakistan). Punjab is divided into thirty-six districts. The population was delimited to one-third of the whole Punjab i.e. twelve districts selected randomly for this study. All school principals, class teachers and parent members of school councils of these twelve districts were the population of the study.

Sampling Technique

The stratified random selection technique was used for sampling of districts. Ten percent (10%) schools from each district were selected by using the convenient sampling technique. A headteacher, two class teachers and one parent member of the school council of the same school were sampled.

Research Instruments

Three Questionnaires for school managers, teachers and parents were developed to collect the data. It was assumed that the School MIS will consist of more or less these modules including Administrative module, Ministry/Local Authorities Module, school Processes Module, Student Information Module, Enrolment Module, Examination Module, Reporting Module, Parent Notification Module, Timetabling Module (Durnali, 2014).

After the review of related literature and input received from the focus group, three questionnaires were developed.

Questionnaire A - for Principals
Questionnaire B - for Teachers
Questionnaire C - for Parents

Validity and Reliability

The content validity of the questionnaires was ensured through the expert opinion by applying Lawshe's Content Validity Ratio as mentioned (Ayre & Scally, 2013). Total of 13 experts were consulted. Six were PhD level faculty members of Allama Iqbal Open University Islamabad while remaining seven were field experts i.e. school heads. Questionnaires were refined according to the opinions of the experts.

The reliability of the questionnaire was ensured through pilot testing. The questionnaires were administered in 30 schools of district Rawalpindi. Only tehsil Gujar Khan and tehsil Kallar Syedan schools of district Rawalpindi were included in the pilot testing. Data collected through pilot testing were analyzed by using SPSS Software.

Data Collection

After validation and reliability, the questionnaires were administered in the sample schools. Twelve districts were selected and one person in each district was our coordinator. The help of Senior Staff

Association Punjab (Staff association of grade 17 and above employees of Punjab Schools) was sought for the selection of district coordinators. Questionnaires were sent to these coordinators through courier and conventional mailing system. These coordinators distributed questionnaires in the schools of their respective districts.

Data Analysis

Data collected through three types of survey questionnaires were analyzed by using SPSS software. Each questionnaire was treated separately. The first questionnaire was for school principals, second for teachers and third for parents. Total of 253 principals, 507 teachers and 255 parents responded to the questionnaires. The frequency of responses and their percentage was drawn.

Questionnaire for Principals

Table 1. General Information about School MIS

S. No	Statement		Yes	No	N/A
1	Do you have any electronic MIS in your school?	*f*	05	245	03
		%	1.96	96.07	1.17
2	Do you need any computerized MIS to easily record and retrieve information in the school?	*f*	213	32	10
		%	83.5	12.5	3.9
3	Do you think that electronic MIS will fulfill the purpose of improvement in school efficiency?	*f*	227	22	6
		%	89.0	8.6	2.4

Table 1 reveals that only 1.96% of principals agreed that they have electronic MIS in the school, 96.07% responded that they don't have any electronic MIS in their School, while only 1.17% were uncertain. 83.5% of principals agreed that they feel the need for any computerized MIS in their school to easily record and retrieve information while 12.5% disagreed with the statement and 3.9% respondents were uncertain. 89% of principals agreed that electronic MIS will fulfill the purpose of improvement in school efficiency, 8.6% of respondents disagreed with the statement and 2.4% did not reply about the statement.

Questionnaire for Teachers

Table 2. General Information about School MIS

S. No	Statement		Yes	No	N/A
1	Do you have any electronic MIS in your school?	*f*	19	482	6
		%	3.7	95.1	1.2
2	Do you need any computerized MIS to easily record and retrieve information in the school?	*f*	435	54	18
		%	85.7	10.7	3.6
3	Do you think that electronic MIS will fulfill the purpose of improvement in school efficiency?	*f*	490	11	6
		%	96.6	2.2	1.2

Table 2 reveals that 3.7% of teachers agreed that they have electronic MIS in their school, 95.1% respondents responded that they don't have any electronic MIS in their School, while only 1.2% were uncertain. 85.7% of teachers agreed that they feel the need of any computerized MIS in their school to easily record and retrieve information while 10.7% disagreed with the statement. 3.6% did not respond towards the statement. The highest majority of 96.6% of teachers agreed that electronic MIS will fulfill the purpose of improvement in school efficiency, 2.2% of respondents disagreed with the statement. 1.2% did not reply about the statement.

Questionnaire for Parents

Table 3. General Information about School MIS

S. No	Statement		Yes	No	N/A
1	Do you have any electronic MIS in your child's school?	*f*	69	117	69
		%	27.1	45.9	27.1
2	Do you feel the need for any computerized MIS in your child's school to easily retrieve information?	*f*	234	14	7
		%	91.5	5.5	2.7
3	Do you think that electronic MIS will fulfill the purpose of improvement in school efficiency?	*f*	237	11	7
		%	92.9	4.3	2.7

Table 3 shows that 27.1% of parents agreed that their child school has electronic MIS, 45.9% of respondents disagreed with the statement, while only 27.1% were uncertain. 91.5% of parents agreed that they feel the need of any computerized MIS in their child's school to easily retrieve information while 5.5% disagreed with the statement. 2.7% did not respond to the statement. 92.9% of parents agreed that electronic MIS will fulfill the purpose of improvement in school efficiency, 4.3% of respondents disagreed with the statement. 2.7% did not answer the statement.

Discussion

The research project was initiated for the need analysis of the school management information system for public high and higher secondary schools in Punjab. To achieve this objective, the complete public school system in Punjab was studied with special reference to prevailing situation; school management system, its requirements, accuracy, reliability and implementation. Then the relevant literature was reviewed to get in-depth insight into the project. After these two basic tasks, a focus group of all stakeholders (Principals, teachers and parents) was formulated and a meeting was conducted in a government high school of district Rawalpindi. The complete concept of school MIS was discussed with the focus group and the input was sought to make the survey questionnaires more comprehensive. Then three comprehensive questionnaires were prepared for school Principals, teachers and parents.

After preparation, these questionnaires were validated through expert opinion by applying Lawshe's Content Validity Ratio as mentioned (Ayre & Scally, 2013). Total of 13 experts were consulted. Six were PhD level faculty members of Allama Iqbal Open University Islamabad while remaining seven were field experts i.e. school heads. Questionnaires were refined according to the opinions of the experts.

The reliability of the questionnaire was ensured through pilot testing. The questionnaires were administered in 30 schools of district Rawalpindi. Only tehsil Gujar Khan and tehsil Kallar Syedan schools of district Rawalpindi were included in the pilot testing. Data collected through pilot testing were analyzed by using SPSS Software.

The school principals, teachers and parent members of the school councils of government high and higher secondary schools of Punjab (Pakistan) were the population of the study. Punjab has 36 districts and the study was delimited to 12 districts. A 10% sample from each of twelve districts was taken. As districts have a different number of high and higher secondary schools so the sample from each district varied in number. The sampling was done carefully from all three regions (north, south and central) in equal proportion. Two districts from the north, four from the south and six districts from the central regions were taken as samples randomly. A total number of high and higher secondary schools in each district was taken from the official portal of the school education department Punjab. One Principal, two teachers and one parent member of the school council from each school were included in the research.

A coordinator from each district was nominated who distributed and received back the questionnaires through special messengers. Local courier service and conventional mailing system were

used to send and receive back questionnaires from district coordinators. Data were analyzed through SPSS. Simple frequency and percentage methods were used.

Results

The responses of the questionnaires A, B & C indicated that 96% of principals, 95.1% of teachers and 50% of parents confirmed that there is no any type of School MIS available in the schools. Survey results indicated that 83.5% of principals, 85.7% of teachers and 91.5% of parents feel that there is a need for computerized MIS in their schools to easily record and retrieve information. It was revealed from the survey results that 89% of principals, 96.6% of teachers and 92.9% of parents agreed that electronic MIS will fulfill the purpose of improvement in school efficiency.

Conclusion

The results of the study confirmed that there is no type of school-based management information system available in the government schools of Punjab. The work of principals and teachers is overburdened due to working manually. It identified the need to develop and launch a school-based management information system in public schools. Survey results indicated the need for computerized MIS to easily record and retrieve information. Respondents agreed that electronic MIS will fulfill the purpose of improvement in school efficiency. It was concluded that school efficiency cannot be improved significantly without introducing a school management information system in public schools.

Recommendations

It is recommended that a centralized school management information system should be launched. School Education Department Punjab may take initiative and launch it according to the needs of schools as mentioned in this study. Each school principal should have full access and administrative control on their relevant portal/data.

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